

Psychological Bulletin

EDITED BY

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PUBLISHED MONTHLY BY THE

PSYCHOLOGICAL REVIEW COMPANY

27-29 COLUMBIA STREET, ALBANY, N. Y.

AND PRINCETON, N. J.

AGENTS: G. E. STECHERT & CO., LONDON (2 Star Yard, Carey St., W.C.);
PARIS (16, rue de Condé)

Entered as second-class matter at the post-office at Albany, N. Y., September 25, 1922

Psychological Review Publications

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FOREIGN AGENTS: G. E. STECHERT & CO., London (2 Star Yard, Carey St., W.C.) Paris (16, rue de Condé)

THE PSYCHOLOGICAL BULLETIN

1. GENERAL

874. SILLITOE, A. G., A Portable Choice Reaction Time Apparatus. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 147-149.

Description with drawing of a small electrically controlled multiple choice reaction apparatus for utilizing a stop watch reading to 1/100 second.

S. W. FERNBERGER (Pennsylvania)

875. CHAPMAN, J. C., Cumulative Correlation. *J. of Exper. Psychol.*, 1922, **5**, 263-269.

Author treats of weights which should be applied to variables in a series of tests in order to secure maximum correlation.

C. C. PRATT (Harvard)

876. MONROE, W. S., The Use and Interpretation of Coefficients of Correlation. *Sch. and Soc.*, 1922, **16**, 288-292.

Two conditions affect the coefficient, namely, the selection of the population and the range of the magnitude of the traits. Within several grades, coefficients may range from $-.12$ to $.57$, whereas the coefficient for all grades combined may reach $.76$. With mental and chronological ages, we have negative coefficients for the separate grades, but a positive for all grades combined. The meaning of a coefficient, *i.e.*, whether it is high or low, depends upon the relationship being studied, *i.e.*, whether any relationship at all exists or how far the relationship is from being perfect. In the latter case the probable error of estimate is recommended. A table of coefficients of the probable error of estimate for all values of r is given.

R. PINTNER (Columbia)

2. NERVOUS SYSTEM

877. HYSLOP, T. B., Venous Stasis. *J. of Ment. Sci.*, 1922, **68**, 144-153.

This is a study of the mechanism of "supply and demand" occurring within the skull. There are two main questions to be investigated: (1) Is the brain a generator, or merely a transmitter of energy? (2) Is the sum total of the intercranial contents capable of variation in amount? The author discusses these questions at some length and then gives a summary of the causes of active and passive congestion within the skull. The former, he says, may be due to any one of a number of causes, among them overaction of the heart, inflammation, sudden contraction of the arterioles elsewhere, dilatation of the arterioles, plethora, tumors and focal lesions. The latter, he says, is always produced mechanically by some obstruction to the return of blood.

He mentions the value in aiding the circulation of massage, certain rhythmic exercises, and adjustment of balance in the glandular functions.

R. E. LEAMING (Pennsylvania)

878. BLACHFORD, J. V., The Functions of the Basal Ganglia. *J. of Ment. Sci.*, 1922, **68**, 153-157.

A report is made of a search of hospital postmortem records, covering a period of twenty years, in cases where the lesion could be definitely located in the basal ganglia. The following résumé is given: Optic thalamus—Three cases: All dementia—no paralysis noted, no convulsions or fits. Optic thalamus and corpus striatum—Three cases: One dementia; one seizures—paralysis, dementia, speech much affected; one seizure—strong convulsions. Corpus striatum—Ten cases: Four speech affected; one hallucinations of sight and hearing; one epilepsy—dementia, destructive; one fits, two or three years before admission; one left-sided convulsions; one epileptiform fits; one pupils normal—knee-jerks present. Internal capsule—One case: Aphasia, hemiplegia, loss of sensation.

The author says that we can only think in terms of muscular energy; in other words, all thought is an incipient muscular contraction, due to mild stimulation of those cells which receive the sense of muscular contraction when certain muscles are used, either to pronounce the name of the thing thought, or to adjust the eyes or other parts of the body in perceiving the object, or, performing the action.

This stimulation, if carried still further, issues in action, viz., the contraction of those muscles used in pronouncing the name or performing the act, of which these cortical cells are the sensory representatives. Associated sensations giving rise to a perception leave the thalamus and reach the corpus striatum. Here they are associated with the muscle sense, which arises whenever the object is perceived and its name pronounced, a mental picture consisting of this muscle sense being thereby projected on to the cortex. In lesions of this body giving rise to a disassociation, or rather to want of association of these sensations, no picture is so formed, and so there is a forgetfulness of the name required, although the object and its use may be recognized, hence visual aphasia. In the same way, should the part concerned with the association of sound and the muscle sense be involved, word-deafness will result, although the patient hears perfectly well what is said to him, the failure being in that part of the nervous center in which the sound is associated with the muscle sense, so that the muscle sense cells in the cortex corresponding to the sound are not stimulated and the consequent mental picture is not formed.

The optic thalami are chiefly the association centers of the primary senses of sight, touch, hearing and smell, and their involvement is accompanied by impairment of those associations which give rise to the perception of things in the outside world. The corpora striata are essentially the centers for the association of the muscle sense with the others giving rise to a great part of our subject consciousness, making speech and thought as we know it possible. In lesions of these structures we have the phenomena of visual aphasia, word-deafness, inability to call up words and names at will, and various difficulties and irregularities of speech and thought due to want of association of the primary senses with the muscle sense. It is probable that these bodies have other functions as well, almost certainly associated with the motor system. Only careful and prolonged investigation will enable this to be solved. Experiments are useless, and clinical, pathological and anatomical research will have to be relied on.

R. E. LEAMING (Pennsylvania)

879. UYENO, K., The Sympathetic Innervation of the Skin of the Toad. *J. of Physiol.*, 1922, **56**, 359-366.

The origin from the spinal cord of the secretory fibers of the skin glands of the toad was investigated. The second to seventh nerves

constantly contain such fibers. The overlapping of the areas of skin supplied by the successive nerves is great.

J. E. ANDERSON (Yale)

880. TREVAN, J., and BOOCK, E., The Effect of Section of the Vagi on the Respiration of the Cat. *J. of Physiol.*, 1922, **56**, 331-339.

The effects of removing the brain of the cat from in front of the anterior colliculi, from a section between the colliculi, and from back of the posterior colliculi, upon respiration are studied. The effects are similar to those produced by very light anesthesia, moderate anesthesia, and deep anesthesia respectively.

J. E. ANDERSON (Yale)

881. WILKINSON, G., A Note on the Resonating System in the Cochlea, with Demonstration of a Model, illustrating the Action of a Hitherto Neglected Factor. *J. of Physiol.*, 1922, **56**, ii-iv.

The writer contends that basilar fibers are differentiated progressively with reference to mass, as well as to length and tension. He describes a model of a portion of the cochlea to demonstrate this factor.

J. E. ANDERSON (Yale)

882. HILL, A. V., The Maximum Work and Mechanical Efficiency of Human Muscles and Their Most Economical Speed. *J. of Physiol.*, 1922, **56**, 19-41.

An instrument is described by means of which the maximum work of human muscles (biceps and brachialis anticus) can be determined. As the mass of the load increases, the maximal work increases also, at first rapidly and then more slowly, tending to reach a definite value equal to the potential energy set free. In a maximal effort the duration of the shortening may be changed by changing the load. The mechanical efficiency of human voluntary movement is discussed. It is shown that there is a certain optimum speed of movement below which the efficiency falls slowly and above which it falls rapidly. The mechanical efficiency of a submaximal effort is always less than that of a maximal effort occupying the same time, and in general the stronger effort is the more efficient. Moreover, the stronger effort has the greater optimum speed.

J. E. ANDERSON (Yale)

883. ADRIAN, E. D., and FORBES, A., The All-or-Nothing Response of Sensory Nerve Fibers. *J. of Physiol.*, 1922, **56**, 301-329.

Hitherto the evidence for the all-or-nothing principle has been obtained almost exclusively on the motor nerve fibers of the frog. This investigation was undertaken to determine whether the relation holds good for afferent as well as for efferent fibers. Impulses set up in the internal saphenous (of the cat) by stimuli of different strength are all equally capable of passing through a narcotized region. When conduction fails for an impulse set up by a weak stimulus it fails also for a strong stimulus. The size of the impulse is therefore independent of the strength of the impulse in the sensory as in the motor fiber. The response of a sensory nerve trunk to a single momentary stimulus may vary in two ways, (a) a strong stimulus will excite more fibers than a weak, and (b) a stimulus which is more than strong enough to excite all the fibers may set up two or more impulses in each fiber. The response to stimuli of different strength was measured in different parts of the arc which is concerned in the flexion reflex of the spinal cat. With reflex stimulation the response of the muscle agrees very closely with that of the afferent nerve, and the gradation seems to depend on (a) the number of nerve fibers stimulated, and (b) the repeated excitation by strong stimuli. When the motor nerve is stimulated the muscle does not give more than a single maximal twitch although the stimulus may be strong enough to give a double response in the nerve. Probably the second impulse has no effect because it reaches the muscle at a time when the latter is still in the absolute refractory state. In the reflex arc, a second impulse due to strong stimulation of the afferent nerve has more chance of affecting the muscle owing to delay at various synapses, etc. A single impulse in the afferent nerve may sometimes evoke two or more impulses in the efferent side of the arc. Whether it does so or not, depends on the condition of the spinal centers. In general the reactions of the reflex arc support the view that the large majority of sensory fibers react according to the all-or-nothing principle.

J. E. ANDERSON (Yale)

884. LANGLEY, J. N., The Nerve Fiber Constitution of Peripheral Nerves and of Nerve Roots. *J. of Physiol.*, 1922, **56**, 382-395.

Cutaneous nerves contain many nonmyelinated fibers, the nerves to skeletal muscles contain few. The result is not in favor of the

theory that the nonmyelinated fibers have any considerable connection with striated muscle fibers. All anterior roots of the spinal nerves are distinguished from the posterior roots by their containing a large proportions of fibers $13\ \mu$ and more in diameter and a relatively small number of fibers of about 7.5 to $11\ \mu$. These differences are most distinct in the lower cervical and lower lumbar regions. The different roots of a nerve fiber vary in constitution; some have many small fibers—up to about $6\ \mu$ —and others very few. The arrangement of fibers in bundles depends chiefly upon their number. Very few non-myelinated fibers and probably none enter the spinal cord in the posterior roots. In the posterior roots of the nerves, the anterior roots of which have no automatic fibers, there are a considerable number of fibers about $5\ \mu$ in diameter with a less number about $3\ \mu$ in diameter. In the posterior roots of the nerves, the anterior roots of which have autonomic fibers, there is a great increase in the number of $3\ \mu$ fibers but not in that of $5\ \mu$ class of fibers. It is suggested that the $3\ \mu$ fibers in all the posterior roots are the afferent fibers of unstriated muscles and glands. The anterior roots of the nerves which contain autonomic fibers have fibers of the size of the larger preganglionic autonomic fibers (3.8 to $4\ \mu$) but expressively few, if any, of the size of the smaller autonomic fibers (2 to $3\ \mu$). A large factor in determining the size of nerve fibers is the nature of the tissue with which they are connected.

J. E. ANDERSON (Yale)

885. HORRAX, G., A Consideration of the Dermal Versus the Epidermal Cholesteatomas Having Their Attachments in the Cerebral Envelopes. *Arch. of Neurol. and Psychiatry*, 1922, 8, 265–285.

The article begins with a discussion of the terminology used in the description of the tumors under discussion, and followed by a historical sketch of these growths, with references to the literature of the subject. Mention is made of the frequency of the two main types, the dermoid and the epidermoid, and of their locations. Two cases from the literature are recited (Bostroem's and Teutschlaender's cases), illustrated by cuts. The three cases from the clinic of Dr. Harvey Cushing, which form the basis of the article, are fully presented, illustrated by gross and histological photographs and roentgenograms. The following summary is appended. "There is group of rare tumors of the intracranial cavity which represent fetal

epiblastic inclusions, sometimes of the epidermal layer alone, and sometimes including also the dermal layer. These tumors may or may not contain hair and other tissue elements, according to the depth of the cell layer represented in the inclusion. It is convenient to group all these tumors under the name cholesteatomas, either hair-containing or nonhair-containing. Three examples of the hair-containing variety, or intracranial dermoids, are presented for consideration, and in two of the patients the tumors were removed by operation, in one of them with apparent success."

D. A. MACFARLANE (Boston Psychopathic Hospital)

886. HILTON, WM. A., The Nervous System of *Phoronida*. *J. of Comp. Neurol.*, 1922, **34**, 381-389.

This interesting, primitive sea animal possesses a crudely centralized nervous system, part of which is separated from the epithelium. Tentacles and body-part have bipolar sense cells, arranged in little groups. Under the influence of an anesthetic the tentacles recover last and are affected first. The body or stem is the last region to suffer from anesthesia. The movements of *Phoronis*, as studied in the laboratory, are ciliary currents on the tentacles, probably not under nerve control; contractions of the tentacles at least partly under nerve control; contractions of the body stimulated through the surface of the body at almost any point, especially by tactile stimuli just below the tentacles.

R. H. WHEELER (Oregon)

887. MOODIE, R. L., On the Endocranial Anatomy of some Oligocene and Pleistocene Mammals. 25 figures. *J. of Comp. Neurol.*, 1922, **34**, 343-380.

A study of nineteen endocranial casts from the White River beds of South Dakota, ranging from Lower to Middle Oligocene, together with two Pleistocene casts from southern California. Rodentia, Insectivora, Carnivora, Cynoidea and Arteidactyle were represented. There has been little or no cerebral development in rodents since Oligocene times. The Insectivora have retrograded in gross cerebral structure as is shown by a more expansive neopallium in Oligocene forms. Some Carnivora show considerable evolution in the complexity of cerebral pattern and in the greater overhang of the cere-

brum over the cerebellum. Of interest is the fact that primitive horses had unusually well developed brains compared with other Oligocene Mammalia.

R. H. WHEELER (Oregon)

888. ROSS, L. S., Cytology of the Large Nerve Cells of the Crayfish (*Cambarus*). *J. of Comp. Neurol.*, 1922, **34**, 37-72.

Much of the cytology of nerve cells offers the perplexing problem: Are we observing structures that are present as such in the living organisms or are we observing artefacts brought about by chemical reagents? By means of intravital staining the experimenter found some evidence of neurofibrillae in the living cytoplasm of *Cambarus* nerve cells. Axones were found to originate deep within the cell body by convergings of neurofibrillae. These minute structures were widely distributed elsewhere in the cytoplasm, almost surrounding the nucleus. No trace was discovered of Nissl bodies in living cells but this fact does not preclude the possibility that the Nissl chemical substance, chromidial, exists in living nerve cells. The author inclines to the view that Nissl bodies, themselves, are artefacts. Mitochondria were readily demonstrable in cell bodies and along the course of the fibers. No Golgi internal reticular apparatus was found. Trophospongium shows connection with the sheath cells and consisted of delicate filaments penetrating even to the center of some cells.

R. H. WHEELER (Oregon)

889. HINES, M., Studies in the Growth and Differentiation of the Telencephalon in Man. The Fissura Hippocampi. *J. of Comp. Neurol.*, 1922, **34**, 73-171.

This is an elaborate study of eight embryos from 11.8 to 43.0 millimeters in length, together with considerable other material for reference. Differentiation does not follow any logical order and is subject to different rhythms of acceleration in different regions. The developing neopallium apparently acts as a disturbing factor, obscuring phylogenetic order or patterns of growth. Before this disturbance takes place certain features of growth in the fissura hippocampi suggest phylogenetic history. The initial differentiation of the neopallium runs behind the hippocampus but subsequently surpasses the latter. The author found some confirmation of Herrick's

quadrant theory of telencephalic evagination. A brief review can in no way indicate the great detail to which the investigation was carried.

R. H. WHEELER (Oregon)

890. BARTELMEZ, G. W., The Origin of the Otic and Optic Primordia in Man. *J. of Comp. Neurol.*, 1922, **34**, 201-232.

The earliest sensory anlage to develop in man is the otic plate, recognizable in an embryo of two to three somites. A four-somite embryo shows the beginning of the associated acoustico-facial ganglion, though the fate of this structure, subsequently, is unknown. Between the 10 and 12 somite stages invagination begins and there is a deep otic pit at 16 somites. The "optic-crest primordium" is derived from a fusing of structures along a ridge of isolated growth-centers or thickenings of the cranial neural folds. This appears at 17 and 18 somites, the earliest stage at which the optic anlage has been recognized in a mammal. In man only does the otic precede the optic anlage. Evidence verifies the conclusion that the optic vesicle is derived entirely from the central nervous system.

R. H. WHEELER (Oregon)

891. BLACK, D. O., The Motor Nuclei of the Cerebral Nerves in Phylogeny. A Study of the Phenomena of Neurobiotaxis. IV. Aves. *J. of Comp. Neurol.*, 1922, **34**, 233-275.

The first three papers of this series appeared as follows: On fishes, this Journal, **27**; the second on amphibia in **28**; and the third, on reptilia, in **32**. The fifth to seventh motor nuclei are associated in a fashion peculiar to aves. Apparently this is due to the fact that sensory impulses from the trigeminal and facial nerves exert a dominating influence over the facial and trigeminal musculature, thus bringing the motor nerves five to seven in close interrelation. Another peculiar feature in aves is a close association of the glossopharyngeal with the dorsal, motor, vagal nuclei. The ninth and tenth motor nuclei are thus associated together and are located in a neighborhood of the chief sensory centers which reflexly act upon them. These considerations point, the author believes, to Kapper's neurobiotactic law. Nuclei ten to twelve form a motor complex, unique among vertebrates, due to similar reasons. Parrots differ from other birds in having a greater development of the hypoglossal component of this complex. Coincident with this is an exceptional development of

intrinsic tongue musculature in parrots. Oculomotor nuclei in birds have differentiated almost to the extent of mammalian development. Certain reptiles show this high degree of differentiation. Thus we have evidence of a ground plan developing within the class from whose prototypes both avian and mammalian forms were evolved.

R. H. WHEELER (Oregon)

892. BURR, H. S., The Early Development of the Cerebral Hemispheres in *Amblystoma*. *J. of Comp. Neurol.*, 1922, **34**, 277-302.

This paper furnishes added detailed knowledge concerning the rostral relations of the longitudinal zones in the neural tube; information which has been the subject of controversy since the original suggestions of his about 1890.

R. H. WHEELER (Oregon)

893. KUNTZ, A., Experimental Studies on the Histogenesis of the Sympathetic Nervous System. *J. of Comp. Neurol.*, 1922, **34**, 1-36.

R. H. WHEELER (Oregon)

894. RUEDEMANN, R., Further Notes on the Paleontology of Arrested Evolution. *Amer. Nat.*, 1922, **56**, 256-272.

R. H. WHEELER (Oregon)

895. WRIGHT, S., Coefficients of Inbreeding and Relationship. *Amer. Nat.*, 1922, **56**, 330-338.

R. H. WHEELER (Oregon)

3. SENSATION AND PERCEPTION

896. GILLILAND, A. R., and JENSEN, C. R., The Reliability of the Seashore Phonograph Record for the Measurement of Pitch Discrimination. *J. of Exper. Psychol.*, 1922, **5**, 214-222.

The scores made by forty-three college students in Seashore's phonographic test for pitch discrimination were compared with the scores obtained by the same students in a test of pitch discrimination in which mounted tuning forks with resonators actuated by piano-forte hammers were used as sources of sound. The latter method

yielded results which averaged 7.9 per cent higher than those of the former. Mounted as against unmounted forks showed a 2.5 per cent gain in accuracy.

C. C. PRATT (Harvard)

897. WEISS, A. P., Discussion: The Stimulus Error. *J. of Exper. Psychol.*, 1922, 5, 223-226.

Author directs a polemic against Professor Fernberger's article (*J. of Exper. Psychol.*, 1921, 3, 63ff) on the "stimulus error" in which weight discrimination is shown to be a complex perceptual integration of tactual and kinesthetic processes. The writer complains that Fernberger is unfair to behaviorism when he asserts that a purely statistical interpretation of the reaction of weight discrimination is futile, for the computation of a limen for lifted weights as usually discriminated by postoffice clerks and housewives yields data just as valid psychologically as those reactions secured from a graduate student in a psychological laboratory who discriminates *attitudes* in addition to weights. The implication that a limen secured by an univocal determination of *process* is the true limen of weight discrimination would be taken seriously by no behaviorist. To the behaviorist such a limen does not represent weight discrimination at all, but merely the ability of a subject to "abstract sensation." The writer regards such an ability as an abnormal supplementary speech reaction of the same nature as illusions and dreams, although admitting that such reactions may be made relatively stable and amenable to systematic investigation.

C. C. PRATT (Harvard)

898. HARTRIDGE, H., A Vindication of the Resonance Hypothesis of Audition. *Brit. J. of Psychol., Gen. Sec.*, 1921, 12, 142-146.

An attack on the Wrightson theory of audition in which the correlation of the physics and perception of the change of a vibrating resonator can be explained by a resonance but not by a displacement theory.

S. W. FERNBERGER (Pennsylvania)

899. SCARLETT, H. W., and INGHAM, S. D., Visual Defects Caused by Occipital Lobe Lesions. *Arch. of Neurol. and Psychiatry*, 1922, 8, 225-246.

The writer begins with a few references to other researches, continues with the clinical pictures presented by the thirteen cases under observation, together with charts of the brain lesions and of the visual fields as obtained by the self-registering perimeter, and draws the

following conclusions: (1) Unilateral occipital lesions commonly result in homonymous hemianopsia, the blind field of each eye being limited by an approximately vertical line passing close to the fixation point. (2) Unilateral occipital lesions do not result in a loss of fixation nor the reduction of acuity of central vision of either eye. (3) Central vision is represented in the apexes of the occipital lobe. (4) Unilateral lesions at a distance from the occipital pole may result in approximately symmetrical paracentral scotomas. (5) Visual defects caused by lesions of the occipital lobes are approximately symmetrical but not exactly superimposable. (6) The macula is a central area of high visual acuity, not sharply circumscribed, extending a short distance from the fixation point which probably represents less than one degree in the arc of the visual field. (7) The hypothesis is suggested that a minute overlapping of innervation exists along the entire vertical line, separating the retinal halves. Each half of the macula is thus in relation with the corresponding occipital cortex, and the fixation point, situated on the line of division, possesses bilateral cortical connections.

D. A. MACFARLANE (Boston Psychopathic Hospital)

900. COBB, P. W., Individual Variations in Retinal Sensitivity, and their Correlation with Ophthalmologic Findings. *J. of Exper. Psychol.*, 1922, 5, 227-246.

Tests for monocular and binocular sensitivity, by a method previously described by the author, were made upon 101 subjects with the view to determine the reliability of the tests and the relation of the results to the findings of ophthalmologic examinations. The records reveal the fact that individual differences exceed the variations of results of any one subject, even after practice has proceeded through four consecutive tests. It appears that there is little, if any, relation between visual defects as found by ophthalmologic examinations and retinal sensitivity, unless the defects are large and numerous. Binocular acuity is dependent chiefly upon the eye of better vision, whereas binocular sensitivity is more dependent on the visual acuity of the eye with poorer vision.

C. C. PRATT (Harvard)

901. HARTRIDGE, H., A Criticism of Wrightson's Hypothesis of Audition. *Brit. J. of Psychol., Gen. Sec.*, 1921, 12, 248-252.

Criticism of one of the essential points of Wrightson's displacement theory of audition, namely, "there are impulse points in any

train of sound vibrations, the time intervals between which approximate closely not only to those occurring in the individual tones which together set the air in vibration, but also to their summation and difference tones."

S. W. FERNBERGER (Pennsylvania)

902. GRANIT, A. R., A Study on the Perception of Form. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 223-247.

Experimental investigation of Watt's integrations in the field of visual perception. The figures were exposed 1/10 second by a tachistoscope and were of three sorts: (1) Figures of familiar objects, (2) simple forms without any direct resemblance to familiar objects, and (3) complex figures drawn without any plan. Subjects unpracticed in introspection were used and so the report took the form of a drawing by the subject as well as the verbal report. The number and sorts of associations are tabulated. The author believes that chance plays a very important part in the children's constructions, rough associations of similarity mediating the transition to images that are for some reason or other easily brought to consciousness. In adult, there is usually a method in reproducing the designs and observation is better and the capacity of concentration greater.

S. W. FERNBERGER (Pennsylvania)

903. COSENS, C. R. G., and HARTRIDGE, H., A Vindication of the Resonance Hypothesis of Audition. IV. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 48-51.

The fact that with pure tones, free from harmonics, change of phase does not audibly affect the quality of the mixed tone is advanced as evidence that harmonic analysis takes place in the ear, such as would be performed by resonators.

S. W. FERNBERGER (Pennsylvania)

904. HARTRIDGE, H., A Vindication of the Resonance Hypothesis of Audition. V. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 185-194.

The author believes that the experimental evidence is in favor of a resonance theory of audition with regard to the following points. The tuning coefficients and persistence coefficients of resonators of different pitch are inversely proportional to one another. The tuning

and persistence coefficients of the ear for the perception of notes of different pitch are inversely proportional and therefore the ear must contain resonators.

S. W. FERNBERGER (Pennsylvania)

905. BARTLETT, F. C., and MARK, H., A Note on Local Fatigue in the Auditory System. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 215-218.

Flügel had shown that in experiments of binaural localization there is a displacement of the tone if it is preceded by a period of uniaural stimulation. Flügel explains this displacement in terms of local fatigue. The authors point out, on the basis of experimental work, that the situation is much more complicated than this explanation indicates.

S. W. FERNBERGER (Pennsylvania)

4. FEELING AND EMOTION

906. WALLIS, W. D., Why Do We Laugh? *Sci. Monthly*, 1922, **15**, 343-347.

Laughter is essentially a social phenomenon and social in origin, operating as a means of expressing and maintaining the group standard. Examples from primitive group life show laughter as a means of holding in check tendencies to depart from it; and laughing at our fellow man seems conditional on our recognizing that "he knows better, or ought to."

J. F. DASHIELL (North Carolina)

907. PRIDEAUX, E., Expression of Emotion in Cases of Mental Disorder as Shown by the Psychogalvanic Reflex. *Brit. J. of Psychol., Med. Sec.*, 1921, **2**, 23-46.

Defining emotion as a "subjective feeling consisting of central excitement and consciousness of visceral sensations," the author believes that the psychogalvanic reflex gives a crude indication of the intensity of emotions. As a result of an experimental study, he finds that there is considerable variation in the same subject due to such causes as fatigue, alcohol and the like. In cases of definite cortical degeneration or maldevelopment, the reflex is very small. The view of James and Janet that the emotions of the hysteric are largely artificial is probably correct.

S. W. FERNBERGER (Pennsylvania)

908. INMAN, W. S., Emotion and Eye Symptoms. *Brit. J. of Psychol., Med. Sec.*, 1921, **2**, 47-64.

Clinical study of cases of glaucoma, unequal pupils, watering of the eyes, squint and the like which seemed to be associated with or caused by emotional stress.

S. W. FERNBERGER (Pennsylvania)

909. SMITH, W. W., A Note on the Use of the Psychogalvanic Reflex. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 282-288.

One difficulty in the use of the psychogalvanic reflex is that of making comparable with one another the reactions observed in different subjects and on different occasions. The question of correction to compensate for variations in the initial resistance of the skin is discussed.

S. W. FERNBERGER (Pennsylvania)

910. NONY, C., The Biological and Social Significance of the Expression of the Emotions. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 76-91.

Speculative article starting with a classification of emotions on the basis of expression with emphasis on the secretions. The social and biological significance of these expressions are noted. It is argued that all this applies equally well to a theory of the origin of language. Language must be formed by the continuation of the evolution of the expression of the emotions from the biological to the social. The emotional mimicry empties itself more and more of its affective contents and becomes a mere symbol—the language of gestures. On the other hand, the emotional reactions specializing in cry, which itself became intelligent and more and more complicated, developed into spoken language.

S. W. FERNBERGER (Pennsylvania)

911. RIVERS, W. H. R., TANSLEY, A. G., SHAND, A. F., PEAR, T. H., HART, B., MYERS, C. S., The Relations of Complex and Sentiment. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 107-148.

Symposium by members of the British Psychological Association. A series of attempts to define these two terms.

S. W. FERNBERGER (Pennsylvania)

912. SHAND, A. F., Suspicion. *Brit. J. of Psychol., Gen. Sec.*, 1922, 13, 195-214.

Article written in 1916 during the war. An attempt to analyze the attitude of suspicion. Suspicion tends to destroy social intercourse and the wider it spreads the more it paralyzes the life of the community. It also tends to prevent our being taken by surprise on the approach of danger by rendering us prepared in advance to adopt, at the right moment, the right action. The author believes that it has an emotional basis. The analysis of this emotional aspect is attempted.

S. W. FERNBERGER (Pennsylvania)

5. MOTOR PHENOMENA AND ACTION

913. CASON, H., The Conditioned Eyelid Reaction. *J. of Exper. Psychol.*, 1922, 5, 153-196.

Since the eyelid reaction may be controlled voluntarily to some extent, the speed with which a subject was able to wink in response to an auditory stimulus was compared with the time which elapsed between the reception of a conditioning stimulus and the resultant eyelid reflex, the assumption being that if the time of the latter is faster than the former, one is in the presence of a reaction not voluntarily controlled. The time was measured with a Bergström chronoscope which was electrically connected with a thin aluminum lever attached to the observer's eyelid. The fundamental stimulus consisted of a current from an induction coil applied to a branch of the third cranial nerve in such a manner as to bring out most effectively the lid reflex; the click of a relay served as an auditory conditioning stimulus. The data used in working up the results were obtained from measurements of the speed of winking to the shock, with and without the auditory stimulus, and to the auditory stimulus with the shock eliminated, both before and after the training period. With most subjects it was possible to secure conditioned reflexes of the eyelid to sound which were considerably faster than voluntary reactions. For one subject, *e.g.*, the average *voluntary* reaction time was 263.6 sigma, whereas the *conditioned* reaction time was 144.3 sigma. The experimental procedure indicated that the intensity of a sound used for a conditioning stimulus should be just below the threshold of the natural reflex wink at the beginning of the training period. There is some evidence for believing that a reflex cannot be established when the conditioning stimulus comes after the fundamental stimulus.

C. C. PRATT (Harvard)

914. MORGAN, C. L., Instinctive Behavior and Enjoyment. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 1-30.

It is assumed that instinctive behavior has an inner aspect of instinctive enjoyment or, in other words, it is conscious behavior with which the author deals. In the study of animal life there are very few instances where the behavior is entirely instinctive, *i.e.*, in which part of the reaction has not been learned by the individual. Instinctive knowledge and instinctive prevision are, however, inferences in the opinion of the author. The relation of instinct to intelligence in the individual and in the race is discussed. Disposition does, however, occur and this is in the nature of preparedness. In the final section, various questions are raised and answered in an effort to find the place of instinct in the evolutionary story of life and of consciousness.

S. W. FERNBERGER (Pennsylvania)

915. LAVIN, C. R., A Preliminary Study of the Reproduction of Hand Movements. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 47-52.

The movements were learned and reproduced with right and left hands and with the eyes both open and closed. It was found that in the beginning all of the subjects attended to the form of the movement rather than to its extent. The points of movement most speedily and accurately learned were the beginning and end and wherever sharp changes of direction occurred. If the eyes were closed during learning or reproduction or both the learning was retarded. Different forms of hand movement were very readily coalesced or "condensed." Guiding the subject's hand during the learning retarded the acquisition. The use of right or left hand does not affect the rate of learning. The most favorable methods of learning and the time relations of learning and reproduction are discussed. Learning and reproducing with eyes closed showed a striking diminution of the size of the reproduction. General suggestions are given.

S. W. FERNBERGER (Pennsylvania)

916. BROWN, W. L., The Influence of the Endocrines in the Psychoneuroses. *Brit. J. of Psychol., Med. Sec.*, 1921, **2**, 1-12.

The hormone theory at one time tended to an undue depreciation of the importance of the nervous control of the body. The primitive nervous system was evolved for defensive purposes, and the sym-

pathetic nervous system retains primitive features both structurally and functionally. There is a close association between the sympathetic nervous system and the endocrine glands as defensive mechanisms, and their action is reciprocal. The endocrines, gonads and sympathetic nervous system form a basic tripod entrusted with the defense of the individual and the continuity of the species. Endocrine glands may be influenced by toxic, nutritional and psychic factors, so that they may, alike, cause or be affected by a psychoneurosis.

S. W. FERNBERGER (Pennsylvania)

917. PEAR, T. H., The Intellectual Respectability of Muscular Skill. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 163-180.

Kinesthesia has usually been classed with the lower senses and has not come in for much respect from the intellectuals. Individual differences in kinesthetic imagery are great. But this is true of all of the other modalities and people who possess a predominant kind of imagery are usually intolerant of others. For many individuals kinesthetic experiences recur in other modalities. A language describing movement is very difficult because most human movements are so very complicated, rapid and individually different. The slowed-up motion pictures are of great assistance in this study. But an improvement of the social and intellectual status of kinesthetic knowledge is noticeable.

S. W. FERNBERGER (Pennsylvania)

918. CANNON, W. B., New Evidence for Sympathetic Control of Some Internal Secretions. *Amer. J. of Psychiatry*, 1922, **2**, 15-30.

From the experimental evidence presented the conclusion is drawn that secretion of adrenin is evoked by asphyxia, by reflex stimulation and by emotional excitement, in an amount capable of influencing the viscera just as they are influenced by sympathetic nerve impulses. Sympathetic stimulation evokes from the liver not only a discharge of sugar but also a discharge of some elaborated unknown substance which has both cardio-accelerator and pressor effects. Electrical, vascular, and cardiac evidence coincide in pointing to a control of the thyroid through the sympathetic glands of the neck. The center controlling the adrenal medulla has been found, by experimentation, to be situated in the upper edge of the fourth ventricle—in the archaic

portion of the nervous system which is the common possession of all vertebrate forms. As yet no evidence has been found which points to any specific effect of the visceral changes on the conscious emotional experience. "May we not find these differential characters in the nervous pattern that lies ingrained in the archaic part of the neurone pattern?"

J. WALKER (Boston Psychopathic Hospital)

919. STURT, M., A Comparison of Speed with Accuracy in the Learning Process. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 289-300.

Attempt to determine whether in motor learning it is better to insist on speed or accuracy. The author found that if movements, such as are employed in typewriting, are learned slowly at first the length of the learning process is not thereby increased. If, during the learning, the attention is directed solely to accuracy the speed will gradually improve. If attention is directed solely to speed, the accuracy tends to diminish.

S. W. FERNBERGER (Pennsylvania)

920. MUSCIO, B., Motor Capacity with Special Reference to Vocational Guidance. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 157-184.

Some occupations require motor performances over and over repeated which require little strength and, after they have been automatized, little intelligence. Other occupations are predominately mental in nature. It is therefore important, for purposes of vocational guidance, to determine whether or not individuals are of predominately mental or motor types. The specific problem of this investigation is to ascertain if there are interrelations of different motor capacities such as those found in the positive correlations of mental tests. Aiming, tapping, tracing, steadiness and tests of that type were given to individuals of both sexes and of different ages. From his results the author concludes that there is no "motor type." Also motor capacities are relatively independent of intelligence. From the point of view of vocational guidance the author believes that every occupation which requires specific motor abilities will require specific motor tests.

S. W. FERNBERGER (Pennsylvania)

921. RUSSELL, S. B., The Evolution of Nerve Muscle Mechanisms. *J. of Compar. Psychol.*, 1921, 1, 395-412.

In a highly speculative story of the origin and development of neuromuscular mechanisms in living organisms, the author makes plenteous use of analogies gathered from many sources, notably from chemistry, physics, and mechanics, and not infrequently from the domains of the household. The concepts used relate to carbon and oxygen union, energy, energy discharge (explosion), intermittency of explosion after the fashion of gasoline engines, outer and inner zones of matter in the organism (the outer two becoming the sensory and motor zones and the inner one becoming the central nervous system), walls and check walls, the perforated burner of the home gas cook stove, "signal" lines, line junctions, "guard" junctions, "association" lines, signal centers, and head centers. A diagram is presented to schematize and clarify what the author is talking about.

H. R. CROSLAND (Oregon)

922. SANDS, I. J., and BLANCHARD, P. Some of the Psychological Mechanisms of Human Conduct. *Ment. Hyg.*, 1922, 6, 498-521.

A conventional survey of instinct and emotion in relation to problems of mental hygiene. Suggestions as to activities of a mental clinic in connection with the schools.

R. H. WHEELER (Oregon)

923. BOND, E. D., Internal Secretions and the Family. *Ment. Hyg.*, 1922, 6, 522-525.

A rich satire on "glandology," offering to the reader a few minutes of delightful recreation. Cleverly done.

R. H. WHEELER (Oregon)

6. ATTENTION, MEMORY AND THOUGHT

924. WITMER, L., What Is Intelligence, and Who Has It? *Sci. Monthly*, 1922, 15, 57-67.

Intelligence is the ability to solve a new problem, but no one has ever devised a test that tests this and nothing else. Education does not really strengthen intelligence but rather supplies intellectual habits. What the world needs to-day is more of the optimism of the progressive and less of the pathological fear of the standpatter.

J. F. DASHIELL (North Carolina)

925. DAVIES-JONES, C., "Forgetting." *J. of Ment. Sci.*, 1922, **68**, 263-265.

Two cases are cited of examples of the forgetting in the psychopathology of everyday life. These cases were treated by the Freudian psychoanalytic method of free association and the reason for the forgetting was eventually discovered.

R. E. LEAMING (Pennsylvania)

926. PETERSON, J., Learning When Frequency and Recency Factors Are Negative. *J. of Exper. Psychol.*, 1922, **5**, 270-300.

Author reports a study in maze learning in which factors of recency and frequency were exactly balanced against themselves as far as positive and negative effects were concerned. Since the subject was sent back to the starting point at the commission of each error, the probability of a correct choice became increasingly less at each successive blind in the maze, and the impressions resulting from the frequency and recency of wrong choices militated, therefore, against the learning of the maze. From the fact that in learning the maze the subjects' errors were eliminated in the forward direction, whereas in other forms of maze learning where factors of recency and frequency are not balanced against themselves elimination of errors is in the opposite direction, author argues that, contrary to those doctrines coming down from early associationistic psychology, the factors of recency and frequency in the modified form of mental maze play no rôle in the act of learning. Learning must be attributed, rather, to a cumulative process in the afferent nerve impulses which, being reflected up through cortical synapses out to efferent nerve paths, exercises a directive influence on the nerve impulses which subsequent stimuli initiate.

C. C. PRATT (Harvard)

7. SOCIAL FUNCTIONS OF THE INDIVIDUAL

927. ANDERSON, L. O., A Preliminary Report of an Experimental Analysis of Causes of Stuttering. *J. of Applied Psychol.*, 1921, **5**, 340-349.

A group of normals, "ex-stutterers" and stutterers were given several tests including the foot-tapping, hand coördination, block test, two-dot test, visual imagery, complex reaction time, inhibition. The results show that stutterers have in the block test a distinctly poorer memory span for movements than normals. No reliable dif-

ference is found between stutterers and normals as to speed or as to number of false reactions in the complex reaction time test. Stutterers do not show, in this situation, any more instability or variability of reactions in the complex reaction time test than do normals.

E. MULHALL ACHILLES (Columbia)

928. TURNER, E. M., The Testimonial as an Advertising Appeal. *J. of Applied Psychol.*, 1922, 6, 192-197.

An attempt was made to determine the value of the testimonial method of advertising from the viewpoint of the permanency of the testimonial writer's interest and belief in the worth of the article advertised. Does the writer of a testimonial continue to believe in the worth of the article he first recommended? Does he answer the letters of those requesting advice? The business house for whom this study was made has 279 testimonials in eight different pamphlets. Of the 279 testimonials 53 were written before the year 1916, 85 in 1916, 97 in 1917, 44 during or since 1918. A letter was written stating that the writer had noted that he or she was an enthusiastic user of the article advertised and would appreciate his advice about it. A stamped envelope was enclosed. Mr. was signed to all letters addressed to men and Miss on all to women. Only 49.4 per cent of the replies were favorable; 6.7 per cent would discourage the potential buyer and 43.9 per cent failed to bring forth a response and made no selling appeal whatever. The more recently written testimonials were more effective than the older ones. One hundred eighty-eight, or 67.4 per cent of the 279 testimonials, were written by men, 82 or 29.4 per cent by women, 9 or 3.2 per cent by representatives of institutions. It was noted that 57.9 per cent of the men and 56.1 per cent of the women answered the letter, requesting advice, favorably. Of the 18 doctors who first recommended the article only 44.4 per cent wrote favorable replies, as compared with 49.8 per cent of 261 people other than doctors, 22.2 per cent of the unfavorable replies written by others than doctors.

E. MULHALL ACHILLES (Columbia)

929. JONES, E. S., Effect of Letters and Syllables in Publicity. *J. of Applied Psychol.*, 1922, 6, 108-204.

It is evident that the effective and memory value of different letter and syllable forms can be experimentally studied to the advantage of applied psychology. Results from the preliminary ex-

periments agree with opinions expressed—forms involving “l” and “r” tend to be pleasing, “t” “d” are preferable to the “g” and “k”, “v” and “s”.

E. MULHALL ACHILLES (Columbia)

930. FILTER, R. O., An Experimental Study of Character Traits. *J. of Applied Psychol.*, 1922, **5**, 297-317.

A trait must be defined in order to be studied intelligently. A table is given to illustrate an attempt at definition. This table includes “situations,” “reactions other factors being equal,” “negative responses.” Experiments were conducted and conclusions as follows, drawn: Fair positive correlations show some constancy of speed and decision. The large majority of individuals tested can not be classified as either quick, slow, or mediocre. Only 10% of those tested may be characterized as quick, 8% mediocre, and 13% as slow. Group tests have inherent disadvantages for measuring this trait.

E. MULHALL ACHILLES (Columbia)

931. GATEWOOD, E. L., An Experiment in the Use of Music in An Architectural Drafting Room. *J. of Applied Psychol.*, 1922, **5**, 350-358.

To investigate the use of music in an architectural drawing room when the men are at work was the purpose of the research, the results of which are here reported. The draftsmen were given a problem every six weeks. An Edison laboratory model phonograph was used to supply music—vocal and instrumental. Fifty-six men replied to the questionnaire given them. Forty-nine said that the music made work easier. Instrumental music was preferred to vocal music. Music unfamiliar to the listener is not as desirable as familiar music. Music is not a feature to be used rarely as a sort of diversion or intermission but may be used to advantage along with work. Frequent short periods of music seem to be most desirable and beneficial.

E. MULHALL ACHILLES (Columbia)

932. BULLOUGH, E., Recent Work in Experimental Aesthetics. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 76-99.

Critical discussion of the work in experimental aesthetics between the years 1900-1914.

S. W. FERNEBERGER (Pennsylvania)

933. MUSCIO, B., Feeling-Tone in Industry. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 150-162.

Attempt to determine whether or not the fatigue feelings of a group of individuals varies during the day. Such variation was found and the curves of diurnal variation corresponding certain striking ways to common industrial output curves. Hence these feelings of fatigue may be a very important factor in normal work.

S. W. FERNBERGER (Pennsylvania)

934. SUTHERLAND, A. H., Correcting School Disabilities in Reading. *Elem. Sch. J.*, 1922, **23**, 37-43.

A description of several forms of backwardness in reading found among children together with a program of remedial measures.

A. I. GATES (Columbia)

935. FEASEY, L., Some Experiments on Aesthetics. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 253-272.

Investigation to determine whether or not the basis of the aesthetic judgment is emotional. The psychogalvanic reflex was used to measure the emotional reaction. Simple rectangles and arrangements of geometrical figures were used as stimuli. The author found that the order of preference for colored rectangles differs markedly from that for uncolored, and also for surface rectangles substituted for outlines. The Golden Section holds a high place where the rectangles are uncolored. Bullough and Myers' four "perceptive types" were found in this experiment also. If the subject had the attitude of regarding the rectangles merely as formal arrangements of figures, they obtained a different result than when they had the attitude of regarding them as representations of objects or scenes. The attitude in each particular case was determined by both objective and subjective factors.

S. W. FERNBERGER (Pennsylvania)

936. MYERS, C. S., Individual Differences in Listening to Music. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 52-71.

Continuation of a former study in which tuning fork tones were used as stimuli. In the present study a phonograph was employed and classical records played. Introspections were taken at the end of each record. For those most trained in music, an objective or technical attitude was present. For the less trained subjects, the

introsubjective and associative aspects were more pronounced. The subject's character was important in determining the associations and feelings which would appear. The importance of these phases in the appreciation of music is discussed.

S. W. FERNBERGER (Pennsylvania)

937. BAILEY, P., A Contribution to the Mental Pathology of Races in the United States. *Ment. Hyg.*, 1922, 6, 370-391.

A study of about 70,000 draft cases who were found mentally pathological in some way. Diagnoses were distributed as follows: around 31 per cent mentally deficient, 16 per cent psychoneurotic, 11 per cent psychoses, 10 per cent nervous diseases and injuries, 9 per cent constitutional psychopathic states, 9 per cent epilepsy, 7 per cent endocrinopathies, 3 per cent drug addicts, 2.7 per cent alcoholism. There follow several very interesting tables showing the relative data on the States of the Union which exceeded the average in mental deficiency; others showing the distribution of different mental diseases among 15 classified races.

R. H. WHEELER (Oregon)

938. GOLDBERG, J. A., Incidence of Insanity Among Jews. *Ment. Hyg.*, 1922, 6, 598-602.

R. H. WHEELER (Oregon)

8. SPECIAL MENTAL CONDITIONS

939. SUMNER, F. C., Psychoanalysis of Freud and Adler. *Ped. Sem.*, 1922, 29, 139-168.

Every individual is duplex, with varying degrees of both masculine and feminine traits, possibly depending upon relative preponderance of masculine and feminine internal glands. On this basis, it is claimed that biologically and psychologically individuals fall into four types, M-f, m-F, f-M, F-m; and an elaborate list of corresponding psychic traits is offered. A study of the Freudian and Adlerian doctrines shows an extreme difference of fundamental type along these lines; the former being feminine, emphasizing the sex motive, womb, infantilism, repression, the unconscious, etc., the latter being masculine, emphasizing the will-to-power, compensation, security-tendency, the conscious, etc. It is claimed that the writings of Freud

and Adler include evidences of definite femininity and masculinity in their respective personalities.

J. F. DASHIELL (North Carolina)

940. DUNLAP, K., Reading of Character from External Signs. *Sci. Monthly*, 1922, **15**, 153-165.

The unfortunate effects of superficial work in the field of intelligence tests and the inadequacy of any tests of moral and emotional traits is made clear. Phrenology is referred to, and the various systems of character analysis by physiognomic details and patterns are shown to have no foundation in any biological scientific knowledge and to overlook the simplest rules of statistics and evidence. The financial success of promulgators of such systems is due to the usual lack of a checking up of some surprisingly good guesses by a few, which latter are explicable as analogous to many human judgments based on cues present but unrecognized.

J. F. DASHIELL (North Carolina)

941. PRINCE, M., An Experimental Study of the Mechanism of Hallucinations. *Brit. J. of Psychol., Med. Sec.*, 1922, **2**, 165-208.

By use of inducing hallucinations, by hypnotic methods, by subconscious automatic writing, the author studies the mechanism of hallucinations. There are types of visual and auditory hallucinations in which the imagery has its source in a dissociated mental process in which the subject is not consciously aware. It is due to the emergence into consciousness of the previously subconscious images. Hallucinations in the insane seem to be identical to this sort induced experimentally. The implications of this view for the study of the psychoneuroses is pointed out.

S. W. FERNBERGER (Pennsylvania)

942. YOUNG, J., Two Cases of War Neurosis. *Brit. J. of Psychol., Med. Sec.*, 1922, **2**, 230-236.

Description of a case of a "schemer" and of a case of anxiety neurosis. Dreams are described and prognosis and therapeutic methods given.

S. W. FERNBERGER (Pennsylvania)

943. SMITH, W. W., Experiments on the Association Test as a Criterion of Individuality. *Brit. J. of Psychol., Med. Sec.*, 1922, 2, 121-130.

The experiments were performed to ascertain whether and to what extent, the distribution of affective tone evoked in the course of a word-association experiment is uniquely characteristic of the subject concerned. The author finds that individuals show marked and characteristic differences in the reactions they give to a suitably selected list of words. Under the conditions, individuals correlate with themselves much more highly than they do with each other. The importance of these findings are indicated.

S. W. FERNBERGER (Pennsylvania)

944. HINKLE, B. M., The Spiritual Significance of Psychoanalysis. *Brit. J. of Psychol., Med. Sec.*, 1922, 2, 209-229.

The author shows that in psychoanalysis we have a method which has the power of awakening in the individual the very subjective experiences which are called spiritual, and which make for the kind of psychic growth and development that religion in all ages has aimed at calling forth.

S. W. FERNBERGER (Pennsylvania)

945. RIVERS, W. H. R., Methods of Dream-Analysis. *Brit. J. of Psychol., Med. Sec.*, 1922, 2, 101-108.

It has been shown that the content as well as the analysis of a dream depends on the conditions under which the dream is obtained and also upon the theory of analysis in the mind of the dreamer. Rivers describes his method of self-analysis during a waking state in which he is able to think very clearly. The association method of analysis is criticised.

S. W. FERNBERGER (Pennsylvania)

946. FITZGERALD, G. H., Some Aspects of the War Neurosis. *Brit. J. of Psychol., Med. Sec.*, 1922, 2, 109-120.

An article from the psychoanalytic point of view. The various kinds of war neuroses and their treatment and prognosis are discussed.

S. W. FERNBERGER (Pennsylvania)

947. JUNG, C. G., The Question of the Therapeutic Value of "Abreaction." *Brit. J. of Psychol., Med. Sec.*, 1921, **2**, 13-22.

Emphasis of the traumatic aetiology of neuroses which has been brought particularly to the fore by the cases of "war neuroses." Advocates a return to the Breuer-Freud therapeutic methods as well as to their theories.

S. W. FERNBERGER (Pennsylvania)

948. LONG, C., Mary Rose. A Study of the Infantile Personality. *Brit. J. of Psychol., Med. Sec.*, 1921, **2**, 68-80.

Analysis of Barrie's play Mary Rose from the psychoanalytic point of view. "Thus in the drama of Mary Rose the complete cycle of the problem of the infantile personality is put before us; nor, in my opinion, is the solution withheld."

S. W. FERNBERGER (Pennsylvania)

949. AVELING, F., AND HARGREAVES, H. L., Suggestibility With and Without Prestige in Children. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 53-75.

The following tests of suggestion were used: hand rigidity, by progressive lines, illusion of warmth, hand levitation by progressive weights, fidelity of report, and line lengths. Suggestion arises out of the total environment and conditions to which the subject is exposed. The suggestion may be either of a personal or impersonal sort. In cases of personal suggestion a negative response, owing to the development of contra-suggestion, is frequent. In cases of impersonal suggestion contra-suggestion is not so frequently aroused. There is evidence which points to a general factor of suggestibility complicated by group factors. General suggestibility is greatly modified by the specific conditions and elements of the whole situation, which vary in individual cases, according to experience of it and knowledge about it. There does not seem to be any correlation between suggestibility and other general factors such as general intelligence, perseveration, oscillation, motor dexterity and common sense.

S. W. FERNBERGER (Pennsylvania)

950. RIVERS, W. H. R., Affect in the Dream. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 113-124.

The author believes that dreams are attempts to solve in sleep conflicts of the waking life and that these attempts are of a more or

less infantile kind since in sleep only the earlier levels of mental functioning are active. Transformation has the effect to abolish or diminish the affective aspect of the conflict. When there is no transformation there is affect in the dream. This affect is painful when the conflict fails to satisfy the most prominent wishes of the dreamer and is pleasant when these wishes are satisfied. But in the majority of dreams the affective element is slight or absent because the struggle is transformed and the solution of the conflict is only of a symbolic kind. Rivers disagrees with the Freudian concept of the censorship as necessary to explain this transformation.

S. W. FERNBERGER (Pennsylvania)

951. STURT, M., A Note on Some Dreams of a Normal Person. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 149-156.

Report in full of a series of dreams of a normal person. These dreams are of interest because she was fully aware of the conflict with which she was struggling.

S. W. FERNBERGER (Pennsylvania)

952. THOM, D. A., AND SINGER, H. D., The Care of Neuropsychiatric Disabilities Among Ex-service Men. *Ment. Hyg.*, 1922, **6**, 23-38.

R. H. WHEELER (Oregon)

953. BAILEY, P., State Care, Training and Education of Mental Defectives. *Ment. Hyg.*, 1922, **6**, 57-67.

R. H. WHEELER (Oregon)

954. MATTHEWS, M. A., One Hundred Institutionally Trained Male Defectives in the Community under supervision. *Ment. Hyg.*, 1922, **6**, 332-342.

R. H. WHEELER (Oregon)

955. SCOTT, A., Three Hundred Psychiatric Examinations Made at the Women's Day Court, New York City. *Ment. Hyg.*, 1922, **6**, 343-369.

R. H. WHEELER (Oregon)

956. PRATT, G. K., The Problem of the Mental Misfit in Industry. *Ment. Hyg.*, 1922, **6**, 526-538.

R. H. WHEELER (Oregon)

957. BINGHAM, T. A., The Psychiatric Work of the New York Probation and Protective Association. *Ment. Hyg.*, 1922, 6, 539-574.

R. H. WHEELER (Oregon)

958. MASSONNEAU, G., A Social Analysis of a Group of Psychoneurotic Ex-service Men. *Ment. Hyg.*, 1922, 6, 575-591.

R. H. WHEELER (Oregon)

9. NERVOUS AND MENTAL DISORDERS

959. KRAEPELIN, E., Ends and Means of Psychiatric Research. *J. of Ment. Sci.*, 1922, 68, 115-143.

The author gives a brief sketch of the founding of the German Institute for Psychiatric Research. He points out the need for such an institution at the present time and the fact that science is ready at this time to make contributions which could not have been made at an earlier period. He shows that attention has been directed primarily to the studying and classifying of symptoms of mental disease but that little progress, with one or two exceptions, has been made in discovering specific causes of mental disorders. The problems for investigation in the field of psychiatric research are complex in themselves and additionally difficult because of the fact that it is so nearly impossible to experiment with the brain of a living human subject. Furthermore, much psychological experimentation is needed on normal subjects to determine more clearly definite relations between brain function and mental expression. Problems in this field are important for the very progress of our civilization favors the appearance of morbid mental phenomena. Our civilization opposes the laws of natural selection by which the fittest alone survive and propagate and an ever-widening stream of inferior stock mixes itself with our offspring to the deterioration of the race. There is a question also whether the higher culture of a people may not itself directly favor the appearance of morbid mental phenomena.

Hitherto, a handful of experimenters in clinics and asylums in the midst of harassing daily tasks, found leisure for research. They had at their disposal insufficient space, slender means, and inadequate material and equipment. In all these directions the establishment and expected completion of the German Institute for Psychiatric Research will effect a change.

R. E. LEAMING (Pennsylvania)

960. BURT, C., Note on the Mental After-Effects of Sleeping Sickness in School Children. *Brit. J. of Psychol., Med. Sec.*, 1922, **2**, 237-238.

Permanent effects, either physical or mental, are noted in 75% of the cases. The mental effects seem to be more significant. Children, after the disease seem to be frequently converted into mental or temperamental defectives. The eventual condition seems to depend on the severity of illness and on the age of the child when attacked.

S. W. FERNBERGER (Pennsylvania)

961. BARRETT, A. M., The Broadened Interests of Psychiatry. *Amer. J. of Psychiatry*, 1922, **2**, 1-13.

"Psychiatry has gained the position of a liaison science between medicine and social problems." Its increasing scope brings increasing responsibility. Educationally it involves "bringing to public attention information that will make possible an appreciation of what produces disordered mental states and what measures can be taken to assure healthy mental development of mind and character. Psychiatric services should be included among other services in general hospitals. Facilities for psychiatric examination and treatment should be made readily available by increasing out-patient departments and traveling clinics. There is need of adequate psychiatric instruction in medical schools, and organized programs of research should be extended by institutions and individuals. The importance of affective influences and personality traits in behavior abnormalities should be emphasized that the present overemphasis of purely intelligence deficiencies may be properly checked.

J. WALKER (Boston Psychopathic Hospital)

962. ROSANOFF, A. J., Costs of a Social Service Department of a State Hospital vs. Economies Effected Thereby. *Amer. J. of Psychiatry*, 1922, **2**, 49-51.

The daily average number of patients on parole from the King's Park State Hospital for the year ending June 30, 1919, before the present large social service department was organized was 304; during the year ending June 30, 1921, after such organization, it was 669, showing an increase of 365. If the increased costs of the social service department (\$9,914.54) is subtracted from 365 times the per capita cost of maintenance of patients for the year ending June, 1921,

(\$379.53), "we find the net saving, accomplished with the aid of that department during the year in question to be \$128,613.91."

J. WALKER (Boston Psychopathic Hospital)

963. WELLS, L. F., AND KELLEY, C. M., The Simple Reaction in Psychosis. *Amer. J. of Psychiatry*, 1922, 2, 53-59.

The article covers briefly the results of simple reaction time experiments in psychotics and presents original data on 37 cases which are distributed according to diagnosis as six manic-depressive excitements, seventeen manic-depressive depressions, five dementia precox, four general paralysis, one organic cerebral disease, four unclassified. These experiments accord with previous work in finding reaction times generally lengthened in psychosis. Individual differences are increased save in the schizophrenic group. The manic-depressive group alone shows a normally small amount of fluctuation of attention to the reaction process. The dementia precox group has a smaller sound-light ratio, the general paralytic group a larger sound-light ratio than the normal, to which the manic-depressive group closely approximates. In general, while normal performances in these functions are to be found individually under any diagnosis, markedly abnormal performances are more characteristic of malign conditions.

J. WALKER (Boston Psychopathic Hospital)

964. BATES, M., An Experiment with Simple Tests for the Insane. *Amer. J. of Psychiatry*, 1922, 2, 61-65.

This is a preliminary report of 40 patients of the Worcester State Hospital who are to be reëxamined in four or five years that a comparison of their present performance on certain intelligence tests may be had. They have been selected as "having if not a slight hope of recovery at least some prospect of doing useful work about the institution." The tests used are discussed and various correlations between specific tests and age, types of disorder and attitude are stated in general terms.

J. WALKER (Boston Psychopathic Hospital)

965. ALFORD, L. B., A Defective Mental Makeup and the Pernicious Forms of Torticollis, Tinnitus, Neuralgia and Pruritus. *Amer. J. of Psychiatry*, 1922, 2, 67-74.

The author states that the object of this communication is to indicate that the pernicious forms of tinnitus aurium and pruritus of the anogenital region, spasmodic torticollis and trigeminal neuralgia

may be similar in nature and to give the reason for this similarity. It is pointed out that with certain apparent exceptions they are alike as to age of onset, course, resistance to treatment, predominance of one symptom in clinical picture and central nervous origin. Gray's conception of a degenerative defect limited to a biological and physiological unit offers the best explanation of the pathogenesis of these forms of neurosis and gives the reason for their similarity.

J. WALKER (Boston Psychopathic Hospital)

966. READ, C., AND ROTMAN, D. B., Study of Institutional Escapes. *Amer. J. of Psychiatry*, 1922, **2**, 75-86.

Data concerning the age, birth, civil status, family ties, occupation, personal makeup, alcoholism, psychosis, length of time in the hospital before escape, mental condition and antisocial tendencies of 241 escapes from the Chicago State Hospital are presented by the writers. A composite picture is presented as follows: A man in the third or fourth decade; very possibly a foreigner; most probably a single man or one free from compelling family ties and rather given to alcoholic indulgence. The chances are that he would be a subsided case of dementia precox, a recovered or improved alcoholic, a rebellious parietic, or an improved case of "individual reaction" type. Only one time out of 20 would he be feeble-minded and practically never a sexual pervert with criminal tendencies. He may have made prior escapes, but not more than one or two if he is to succeed in remaining out of the institution.

J. WALKER (Boston Psychopathic Hospital)

967. MYERSON, A., Anhedonia. *Amer. J. of Psychiatry*, 1922, **2**, 87-103.

Desire is fundamentally "an uneasiness brought about by coenesthetic tensions." "Anhedonia seems to be a kind of organic anaesthesia—a dropping out from consciousness of desire and satisfaction," and is characterized by a disappearance of energy feeling. The individual is susceptible to diffuse excitement which tends to have a disturbing and painful effect. The loss of the feeling of energy and the loss of the desire for food, drink and sex satisfaction has many causes. It occurs in post-infection conditions (typical after influenza) following surgical operations and pregnancy, during menopause in women and the involution period in the male. It occurs when purposes are blocked. "The most characteristic cases of anhedonia are seen as preliminary and early stages of mental disease." There are

cases which might well be called "idiopathic anhedonia" and individuals who appear constitutionally anhedonic. The technique of therapy must be to break the unhealthy habit as quickly as possible and to do this the "psychical reëducation and adjustment are not nearly as effective as drugs and physical therapeutics." "I fail to see that their (the psychoanalysts') claims are warranted by their results."

J. WALKER (Boston Psychopathic Hospital)

968. THALHIMER, W., Epidemic (Lethargic) Encephalitis. Cultural and Experimental Studies. Second Communication. *Arch. of Neurology and Psychiatry*, 1922, 8, 286-298.

Many investigators have studied the virus, organism, and the resulting lesions of lethargic encephalitis, and references to some of these studies are represented in this article. "The results of some experimental and cultural studies of epidemic encephalitis were reported in a preliminary communication and were believed to confirm the demonstration by Loewe and Strauss of a minute, filtrable organism as the cause of this disease. Additional material has been studied, and similar results have been obtained and are presented in this report." The findings of Maggiore and Sindoni, in their work on epidemic encephalitis, and of Flexner and Noguchi in theirs on poliomyelitis, have suggested the identity of these two diseases. Subsequent facts, however, militate against this view. The writer has presented the methods and findings of his study, methods of inoculation, cultures obtained both before and after necropsy, and the resulting lesions. "Some of the cultures were carried through 22 generations. Cultures were repeatedly filtered and the minute organism recovered from the filtrate." The article is illustrated with photomicrographs.

D. A. MACFARLANE (Boston Psychopathic Hospital)

969. COBB, C., Electromyographic Study of Paralysis Agitans. *Arch. of Neurol. and Psychiatry*, 1922, 8, 247-264.

The apparatus used by the writer was the string galvanometer and a recording camera such as used for cardiographic work. The arrangements of the instruments, methods of application, type of electrodes, etc., are described. The eighteen cases which form the material for the study are presented. The electromyograms are presented and their characteristics discussed. The writer makes the following conclusions. (1) The tremor of paralysis agitans gives

a characteristic electromyogram, with large, slow waves at the time of muscular contraction, and smaller, more frequent waves between these tremor contractions. (2) The rate of the tremor of paralysis agitans is remarkably constant, the average being 5.8 per second. Little variation is observed in any one case when reëxamined months later. (3) In children the rate of the tremor may be much more rapid. (4) Scopolamin may stop the tremor, but does not seem to slow the rate when acting less completely. (5) Various muscles in the same person show practically the same rate tremor.

D. A. MACFARLANE (Boston Psychopathic Hospital)

970. CRAIG, M., Some Aspects of Education and Training in Relation to Mental Disorder. *J. of Ment. Sci.*, 1922, **68**, 209-228.

The margin between the sane and the insane is very narrow. In a given individual nothing more than exaggerated and uncontrolled normal characteristics may constitute mental disorder. Hypersensitivity, as a physical sign and as a condition affecting the mental processes, leads to unhealthy emotion, to preoccupation, to false reasoning. It heightens introspection and aggravates all the normal characteristics of the individual. It disturbs the relationship of self to surroundings and with this failure of adaptation a sense of inferiority or of irritation may result. Nature may rebel, in which case a psychical anesthesia results. The causes of hypersensitivity include physical diseases and disorders, defective sleep and the overaction of various mind processes. Laziness is an important symptom to be noticed in children and adults but especially in children. It is a proper mental reaction to a definite debilitated state of mind. The author takes up the importance in education and training of repression, as shown by Freud; emotion, home environment and training, punishment, shyness, fearlessness, and phantasy. He discusses the "introverted" and the "extroverted" child, and says that the goal of all mind training is self-discipline. He stresses emphatically the meaning of true self-discipline. He closes by stating that there is a great difference in innate mental endowment and that phrases like "equal opportunities for all" have a fascinating sound to the uncritical mind but if this assumed truth is carried into general practice this kindly attention will bring about the mental downfall of many of those for whom help is intended.

R. E. LEAMING (Pennsylvania)

971. Good, T. S., The Use of Analysis in Diagnosis. *J. of Ment. Sci.*, 1922, **68**, 229-236.

The author discusses at some length two cases, one diagnosed as neuresthenia, the other as hysteria. The method of psychoanalysis was employed and by its aid physical conditions were diagnosed which would otherwise have escaped notice altogether or remained partially understood. The key to the solution of the physical mischief lay repressed in the unconscious and in consequence could not be furnished in response to the usual methods of examination.

R. E. LEAMING (Pennsylvania)

972. RUTHERFORD, H. R. C., The Nature of the Psychopathic Inheritance. *J. of Ment. Sci.*, 1922, **68**, 236-245.

For nearly all time it has been recognized that heredity plays a prominent part in mental disease. The modern tendency is to minimize the importance of it as a causative factor. The statistics of a recent study made by the author disclose that heredity figured as a cause in 10 to 20 per cent of the cases. It is practically impossible to gain any real information as to the actual number of cases in which heredity is a causative factor because patients and relatives are so successful in concealing facts. The true inheritance in mental disease is one of instability. Instability is physical in origin and hypothyroidal in nature. The author gives examples of several families to illustrate the effects of treatment along these lines. The main problems in mental disease, the inborn mental defect, the various degenerations and infections, occur in individuals who have suffered from a deficient secretion of the thyroid.

R. E. LEAMING (Pennsylvania)

973. LARGUIER DES BANCELS, M. J., L'Abime de Pascal. *Arch. de Psychol.*, 1921, **18**, 135-140.

From two sources, the letters of L'abbé Boileau and the biography of Marguerite Périer by Faugère, the author presents data concerning the origin and the development of Pascal's phobia of falling from precipices with its allied hallucinations. It is maintained that this celebrated case of phobia was really a case of fear of open places, and that it originated in childhood; but the author seems to feel that the Freudian explanation is inadequate. A parallel is drawn with the case of phobia described by Ernest Jones in the eighth volume of the *J. of Abnorm. Psychol.*

H. R. CROSLAND (Oregon)

974. RIGGS, A. F., Nervousness: Its Cause and Prevention. *Ment. Hyg.*, 1922, 6, 263-287.

A simple and reliable statement of the problem, based upon a clearer insight into psychology than is generally revealed by writers on nervousness. There are four outstanding causes of nervousness. First, a temperamental oversensitiveness to one's feelings and emotions and to pleasurable and painful situations. This cause may be detected early in childhood by certain biological symptoms such as blushing or blanching easily, overexcitability of the kidneys and sweat glands, greater than normal dependence upon praise. Secondly, there is a disturbance of balance of instincts and since emotions are the dynamic sources of energy of instincts there is likewise a disturbance of balance of emotions. Thirdly, a difficulty in realizing one's ideals either because they are unformed or fail in adequate expression due to instinctive and temperamental obstacles. Fourth, irregular development such as is found when intellectual development surges far ahead of the physical and moral or the physical ahead of the mental. Ten practical suggestions are offered for the prevention or alleviation of nervousness in adults.

R. H. WHEELER (Oregon)

975. CRAWFORD, N. A., Mental Health and the Newspaper. *Ment. Hyg.*, 1922, 6, 300-305.

Notes on the duties of the newspapers. Written by a journalist.

R. H. WHEELER (Oregon)

976. POTTER, H. W., Personality in the Mental Defective, with a Method for its Evaluation. *Ment. Hyg.*, 1922, 6, 487-497.

Here is presented a suggestive scheme, intended only to be a general aid in roughly estimating a patient's traits and adapted for use on feeble-minded over seven years of age. The following main classes of traits are divided into subgroups: sense of responsibility, intellectual characteristics, industrial efficiency, amount of nervous and muscular energy, habitual reaction to inferiority, special adaptations such as amiability and sociability, socially unfavorable and antisocial traits, prevailing moods, traits of interest, etc., favoring specialized educational efforts, unique and pathological traits.

R. H. WHEELER (Oregon)

10. INDIVIDUAL, RACIAL AND SOCIAL PSYCHOLOGY

977. BARNES, H. E., The Progress of American Penology as Exemplified by the Experience of the State of Pennsylvania, 1830-1920. *J. of Crim. Law and Crim.*, 1922, 13, 170-227.

The writer presents an historical account of the chief advances in penological concepts and practices with special reference to the state of Pennsylvania. The material is divided into eight sections: (1) The commutation of sentence for good behavior; (2) the indeterminate sentence operated in conjunction with a parole system; (3) the differentiation, separation and progressive classification of prisoners in accordance with a study of their personal history prior to commitment and their behavior in confinement; (4) the differentiation of the defective from the delinquent class and a proper specialization in the treatment of the latter; (5) careful psychological observation and analysis of the delinquent population; (6) sterilization or permanent segregation of habitual criminals; (7) the religious, moral, academic, vocational and social education of convicts; and (8) the introduction of preventive methods, such as probation, designed to avoid when possible the necessity of the expense and humiliation of imprisonment.

J. WALKER (Boston Psychopathic Hospital)

978. LIND, J. E., The Cross-Examination of the Alienist. *J. of Crim. Law and Crim.*, 1922, 13, 228-234.

The writer draws from his experience as an alienist "some of the high lights which may be of reminiscent interest to those who have been through the mill and serve as danger signals to those who seek experience of this sort under the impression that alienists receive big fees for a little pleasant work." The instances where and the methods by which testimony may be distorted and vitiated by the cross-examiner are of interest and of value to any one who with or without consent may be called upon to give such testimony.

J. WALKER (Boston Psychopathic Hospital)

979. ALEXANDER, J. P., The Philosophy of Punishment. *J. of Crim. Law and Crim.*, 1922, 13, 235-250.

The writer discusses the evolution of theories of punishment for crime, involving motives of vengeance, retaliation, retribution or compensation, and of deterrence against repetition by the criminal or imitation by others. He points out that the modern trend must be

away from punishment for the crime and toward punishment to the extent of the criminal's responsibility, which varies greatly in individuals. He suggests specifically the indeterminate sentence, a perfected parole system, right of suspension of sentence in a proper case, limited pardoning power, administrative boards (bodies equipped to make expert study and report upon criminals), a more rational treatment of those in confinement, and a sense of responsibility for the family of the convict.

J. WALKER (Boston Psychopathic Hospital)

980. VOLLMER, A., Aims and Ideals of the Police. *J. of Crim. Law and Crim.*, 1922, **13**, 251-257.

To obtain a maximum of police protection at the lowest possible expense, better methods of selecting applicants must be established and training schools for police officers, better equipment, research departments, studies of the cause of delinquency, centralization of records and the systematic education of public must be effected.

J. WALKER (Boston Psychopathic Hospital)

981. DVORAK, H. D., and DVORAK, A., Commitment as Delinquent. *J. of Crim. Law and Crim.*, 1922, **13**, 258-265.

The writers present data from a study of 215 delinquent boys at the Sockanosset School, Rhode Island. Tabulations of chronological age and grade placements, chronological age versus mental age, mental age and grade placements are made and the conclusion is drawn that "the school for delinquent boys in Rhode Island is a nest of maladjustments."

J. WALKER (Boston Psychopathic Hospital)

982. SMITH, C. B., The Adequacy of Police Forces. *J. of Crim. Law and Crim.*, 1922, **13**, 266-271.

The writer points out that for adequate policing not only area, population and assessed valuation of property (which in the main are made the basis of comparative statistics) but racial elements, continuity of employment, special geographical and transportation factors, habits, traditions, etc., in a general way must be considered and such conditions in relation to requisite strength of police force must be standardized.

J. WALKER (Boston Psychopathic Hospital)

983. WEISS, C., A World Bureau of Prosecution—New Methods of Identification. *J. of Crim. Law and Crim.*, 1922, 13, 272-274.

A discussion of ways and means to facilitate the apprehension both of criminals in foreign countries and international criminals. Particularly the organization of an international police congress is stressed.

J. WALKER (Boston Psychopathic Hospital)

984. SMITH, M. H., The Medical Examination of Delinquents. *J. of Ment. Sci.*, 1922, 68, 254-262.

The author takes up the remarkable change in status and duties of the prison medical officer of the present day and those of the prison medical man of the eighteenth century. He stresses the importance of a knowledge of insanity and mental defects for the medical officer dealing with delinquents since we now recognize that conduct is the direct result of mental life. He makes a plea for more medical officers for work with delinquents and for more training for these officers along the lines of insanity and mental defects. He would like to see a closer union between the asylum, the prison, the mental deficiency and the school services, looking toward one great universal, unified medical service.

R. E. LEAMING (Pennsylvania)

985. SUTTIE, I. D., Critique of the Theory of "Herd Instinct." *J. of Ment. Sci.*, 1922, 68, 245-254.

When we speak of a "herd instinct" we mean an innate motive (conscious) or impulse (unconscious) determining social conduct, or at any rate regulating individualistic tendencies in such a way as to make social life possible or necessary. Such a conception is of considerable significance for medicine and in its psychosocial applications.

This paper aims to show that the conception of "herd instinct" as an instinct is unphilosophical, unscientific and unnecessary. To show that this concept is invalid it is necessary to demonstrate a difference in kind between the associative tendency and the instincts generally recognized as such.

The author defines and describes the term instinct and says that it is a biopsychophysiological term. He explains how it is used in the field of each of the three sciences involved. He shows that "herd instinct" has no definite and accepted meaning in psychology and physiology. The conception's value is surely purely descriptive and not suggestive or explanatory. We are asked to imagine an instinct without any special organ to originate and transmit stimuli

or to discharge its function or to be the intermediary between the germinal "anlage" and a psychic function. In the psychological field we are told that we may recognize the subjective side of "herd instinct" in the form of a craving for companionship. The social sentiments we are told develop from this impulse. But these sentiments do not occur in children, their development coincides in a noteworthy way with the establishment of the sexual function, their nature is complex and highly evolved (the very antithesis of the type of reaction we are accustomed to call instinctive), they are acquired with difficulty, are variable and are easily lost in disease. "Herd instinct" is a term lacking even descriptive validity as it is based on an arbitrary classification, imperfect observation, and several traditional assumptions which are quite fallacious.

Mind is social in origin and content and individuality is largely an illusion due to the complex interplay of cultural influences. Minds do not coöperate to form culture; they are not the units whose combination forms society, but are formed by society. Unless we reduce our conception of herd instinct to so general and aspecific a form that there will be no justification or use in regarding it as an instinct, we cannot explain why training and compulsion should be so conspicuous a feature of human social life.

The author formulates three alternative views of gregarious instinct. First, that it is really universal, but may lie latent. Second, that it denotes merely a type of behavior without implying any identity in the psychophysical mechanisms determining this. Third, the conception of "herd instinct" as analogous biologically, physiologically, and psychologically to sex, nutrition, etc., with the exception that it is a specific character of limited distribution. This is the view criticized and rejected in this paper, because the theory of "gregarious instinct" is formulated to solve a problem which is factitious and illusory; there is no structural integration of the gregarious instinct unlike instincts proper; subjectively the mere impulse to associate is not constant or definite enough to be indisputably distinguished from a possible sexual derivative or component; and we cannot account biologically for the distribution of the instinct determining the social habit.

R. E. LEAMING (Pennsylvania)

986. JONES, O. M., A Study of Juvenile Delinquency. *Sch. and Soc.*, 1922, 16, 344-348.

A general article dealing with the causes of truancy and delinquency. Reference made to intelligence tests but no results given.

Conclusion drawn that "any group of delinquent boys will be found distributed as to intelligence in about the same proportion of bright, normal, dull or any other group of children." Delinquents suffer from emotional disturbances, improper environment and inadequate training rather than from physical ills or mental defectiveness.

R. PINTNER (Columbia)

11. MENTAL DEVELOPMENT IN MAN

987. THORNDIKE, E. L., An Instrument for Measuring Certain Aspects of Intelligence in Relation to Growth, Practice, Fatigue, and Other Influences. *J. of Exper. Psychol.*, 1922, **5**, 197-202.

In this paper Professor Thorndike states the relative difficulty, on the basis of average scores for college entrants, of fifteen alternative forms of a test similar in type to the army Alpha. Such a numerical evaluation of the relative difficulty of these tests enables one to measure certain aspects of intelligence as influenced by such temporal factors as growth, practice, and fatigue.

C. C. PRATT (Harvard)

988. HOLSOPPLE, J. Q., Reliability of Scores in Steadiness Tests. *J. of Exper. Psychol.*, 1922, **5**, 203-213.

In order to avoid the necessity of recording all the contacts of a subject in the eleven holes of a steadiness plate, one may secure a fairly reliable index of steadiness by recording the number of contacts in the last hole just before a maximum limit of fifteen touches is reached. The rating thus obtained correlates closely with that based on total contacts in all holes. Because of the fewer number of contacts to record, a telephone receiver seems more advantageous in this procedure than the kymograph.

C. C. PRATT (Harvard)

989. COLE, L. W., Prevention of the Lockstep in Schools. *Sch. and Soc.*, 1922, **15**, 211-217.

Gives some results of a new group intelligence test for kindergarten and first grade children. Shows what enormous differences in mental age exist in first grade children tested on the Binet or on the new group test. The mental age range is from 3.6 to 8.6. The average difference in mental age between the best and the poorest

pupil in the beginning class is 3.7 years. Classes formed on the basis of mental age accomplish far more than others when necessity forces a resort to half-day sessions. The author opposes classification according to I. Q. when intelligence is equal, because it becomes then a classification by means of chronological age. "It puts the younger children in the higher class."

R. PINTNER (Columbia)

990. THORNDIKE, E. L., The Abilities Involved in Algebraic Computation and in Problem Solving. *Sch. and Soc.*, 1922, 15, 191-193.

Algebraic computation is not mechanical or merely a matter of memorizing some rules. It requires intelligence. If pupils are lacking in intelligence, what commonly happens is not that they learn to compute mechanically, but rather that they do not learn to compute at all. The correlations of problem solving and computation with intelligence show that algebraic computation involves very much the same abilities that problem solving does. The correlation between problem solving and intelligence for university students is about .66 and between computation and intelligence about .53. For a random sample of the population, carried on in school work, including algebra, to the age of eighteen, these correlations would probably be about .9 and .8 respectively. Algebraic computation is therefore emphatically an intellectual ability, although not so indicative of intellect as problem solving. It is far above the reproach of being a mechanical routine.

R. PINTNER (Columbia)

991. JONES, E. E., The Correlation of Visual Memory and Perception of Perspective with Drawing Ability. *Sch. and Soc.*, 1922, 15, 174-176.

An attempt to discover the native powers peculiar to children who have art ability. A questionnaire sent to over 200 artists gives valuable information in the attempt to study the mind of the artist. It deals much with spatial relations, making fine judgments of size, form, shape, contour, etc. Art ability seems closely linked with esthetic appreciation. Tests of visual memory and perception of perspective given to seventh and eighth grade children show high correlations with drawing ability.

R. PINTNER (Columbia)

992. TOWNSEND, H. G., The Concept of Inferiority. *Sch. and Soc.*, 1922, **15**, 134-138.

Argues against the use of intelligence tests as branding a child "inferior." The story of a boy whose school work improved after hearing Madame Currie lecture is given as an illustration of the impracticability of prognosis by means of intelligence tests.

R. PINTNER (Columbia)

993. MADSEN, I. N., Intelligence as a Factor in School Progress. *Sch. and Soc.*, 1922, **15**, 283-288.

Presents evidence of the importance of intelligence as a factor in school progress. The Haggerty Intelligence Examination was given in grades III to VIII and the Army Alpha in high schools. Altogether 12,182 children were tested. Many distribution tables are given. The superiority in intelligence of the younger pupils over the older pupils in the same grade is strikingly demonstrated. The pupils in any grade who are the youngest chronologically are the oldest mentally, and conversely. Above grade VII selection on the basis of mental maturity seems more rigid than below that grade, and hence the rapid elimination from school in grades VIII and above. In order to receive special promotion a pupil must have a mental age of at least two years more than the grade which fits his chronological age.

R. PINTNER (Columbia)

994. BRIDGES, J. W., The Value of Intelligence Tests in Universities. *Sch. and Soc.*, 1922, **15**, 295-303.

Gives the results of a questionnaire sent out in 1920 as to the use of intelligence tests in universities. Finds a great many tests given, but relatively little use made of them for practical purposes. Gives correlations between tests and academic grades. The prognostic value of the tests is not high. Favors a more comprehensive psychological examination for special cases, but not for all students.

R. PINTNER (Columbia)

995. BATSON, W. H., The South Dakota Group Intelligence Test for High Schools. *Sch. and Soc.*, 1922, **15**, 311-315.

A group examination of six tests was given to 1453 high school students. Shows wide differences between schools and classes. Teachers grade according to the pupil material they possess and com-

parisons of different teachers' grades mean nothing. Boys planning to attend college do not rank as high as average of whole group. With girls the opposite is true.

R. PINTNER (Columbia)

996. MONROE, W. S., The Description of the Performance of Pupils on Exercises of Varying Difficulties. *Sch. and Soc.*, 1922, **15**, 341-343.

Tests having exercises of varying difficulties may be scored either by number correct by a total score based upon the weighted scores for each item of the test, such weights being determined by the relative difficulty of the different items. The same test scored in both these ways seems to give about the same results. A spelling test showed correlations of 96 and 97 between weighted and unweighted scores; a history test 87 and 91. It is, therefore, more economical and justifiable to describe the performances of pupils in terms of number of items done.

R. PINTNER (Columbia)

997. JOHNSON, J. B., Tests for Ability Before College Entrance. *Sch. and Soc.*, 1922, **15**, 345-353.

Examines the predictive value of high school marks, ability in freshman English themes, advanced studies in high school and intelligence tests with reference to work in college. Previous preparation is of greater predictive value than score on Alpha. If all four methods of evaluating the student are used, the predictive value becomes very great. Only one student among those whose records were low in all four respects was able to graduate from college.

R. PINTNER (Columbia)

998. SEASHORE, C. E., Sectioning Classes on the Basis of Ability. *Sch. and Soc.*, 1922, **15**, 353-358.

Advises that this be tried in colleges and universities in subjects such as English I, etc., where there are many sections. The basis for sectioning should be "a competitive test of capacity for doing the kind of work required in this specific course." General mental tests may be used as supplementary

R. PINTNER (Columbia)

999. LAYTON, W. K., The Intelligence Testing Program of the Detroit Public Schools. *Sch. and Soc.*, 1922, 15, 368-372.

Describes the scope and services of the psychological clinic of the Detroit public schools. The Detroit First Grade Intelligence Test has been given to about 11,000 children, and accelerated, normal and slow classes have been formed. Group tests are also given to average pupils and children who are candidates for special advanced classes. In addition about 10,000 have been examined by request of the schools themselves, generally for purposes of classification.

R. PINTNER (Columbia)

1000. BAGLEY, W. C., Educational Determinism; or Democracy and the I. Q. *Sch. and Soc.*, 1922, 15, 373-384.

A criticism of the educational determinism which has developed from the present-day use of intelligence tests. The point at which intelligence seems to stop growing "has jumped back and forth over the chronological ages between thirteen and eighteen, like a veritable grasshopper." Mental growth is not only vertical but horizontal, and the possibilities of this horizontal growth are limitless. Hence a child's future education should not be determined by his I. Q. This would be undemocratic. Democracy must continue to give the common man a thorough education, because it is only by such means that his intelligence can be raised.

R. PINTNER (Columbia)

1001. SCOTT, W. D., Intelligence Tests for Prospective Freshmen. *Sch. and Soc.*, 1922, 15, 384-388.

Now that mental alertness tests have been well established and can be easily and quickly administered, it is necessary for college administrators to raise the question as to the purposes for which they should be used. By means of the tests it might be easy to select students who are almost certain to be able to complete the present college course, and to eliminate all others. Elimination, however, should not be the main purpose of the tests. They should be given by experts "whose interest is in the welfare of the applicant, not in the success of any college program." A personnel director is necessary in the college to give advice and guidance to students.

R. PINTNER (Columbia)

1002. MOHLMAN, D. K., The Discriminative Value of the Subtests of a Group Intelligence Test. *Sch. and Soc.*, 1922, **15**, 399-400.

Discriminative value is measured by the correlation between the test and the total scale. Results of 77 university students are compared with the results for 986 school children on the Indiana Group Scale of Intelligence. The rank orders of the coefficients for the two groups are very dissimilar. Tests showing a high degree of value for testing the intelligence of immature subjects of varying mental ability are likely to be of little or no value for measuring adults of superior mentality.

R. PINTNER (Columbia)

1003. BREED, F. S., Shall We Classify Pupils by Intelligence Tests? *Sch. and Soc.*, 1922, **15**, 406-409.

Points out the discrepancy in classification among different intelligence tests. Three intelligence tests gave an average intertest correlation of .77. If, however, pupils are classified by two of these tests into three sections of equal size, the disagreement in classification amounts to 30 per cent of all the pupils. Such results call for great caution in the use of tests for classifying pupils. Emotional and volitional factors need to be taken into account.

R. PINTNER (Columbia)

1004. ARTHUR, G., Eliminating First Grade Failure Through the Control of Intellectual, Physical and Emotional Factors. *Sch. and Soc.*, 1922, **15**, 474-484.

Describes the tests given to 36 first grade children and their progress through the year. Individual assistance was given to several according to their needs. Many detailed case studies are reported.

R. PINTNER (Columbia)

1005. CHASSEL, C. F., The Results of the Thorndike Intelligence Examination in the Senior Class of the Horace Mann High School for Girls. *Sch. and Soc.*, 1922, **15**, 511-512.

Fifty-four students were tested and the scores are given. Interpretation of the scores show that 66 per cent could be safely admitted to college. An additional 28 per cent would probably attain a college degree if specially earnest or industrious. Only 6 per cent would prove unsuitable college material. Intelligence and teachers' ratings correlate .65.

R. PINTNER (Columbia)

1006. MITCHELL, D., Psychological Examination of Preschool Age Children. *Sch. and Soc.*, 1922, **15**, 561-568.

Reports intelligence tests of over one thousand children in the kindergarten and first grade. A distribution of the I. Q.'s is given, which shows a larger percentage of inferior I. Q.'s than Terman's distribution of unselected cases. The largest percentage falls between 80 and 89. The classification of children into sections in each school on the basis of I. Q. was recommended. One hundred and thirty-five children were recommended for retests because of language difficulty, incomplete test, no coöperation, and the like.

R. PINTNER (Columbia)

1007. DAGNEY, S., Intelligence Tests and Collegiate Selection. *Sch. and Soc.*, 1922, **15**, 593-595.

Reports of the results of several tests given to 558 students at Newcomb College. Intertest comparisons are given and the correspondence of test scores with academic grades is discussed.

R. PINTNER (Columbia)

1008. YEPSEN, L. N., A New I. Q. Slide Rule. *Sch. and Soc.*, 1922, **15**, 596.

Describes a slide rule for the calculation of the intelligence quotient.

R. PINTNER (Columbia)

1009. THORNDIKE, E. L., The Permanence of School Learning. *Sch. and Soc.*, 1922, **15**, 625-627.

A measurement of forgetting in algebra. Ability of college graduates, college entrants and high school pupils compared. The loss during four years from college entrance to first year in law school is approximately a reduction from ability to do four or five specific algebra examples to an ability to do only three. This may be compared with the median ability to do all five shown by the high school students. Such facts should prevent the very exaggerated notions of the loss of learning which are common to-day. How long it would take to recover ability once possessed is not known and should be investigated.

R. PINTNER (Columbia)

1010. WILSON, W. R., Mental Tests and College Teaching. *Sch. and Soc.*, 1922, 15, 629-635.

Correlations between effort in academic work, as measured by time spent in study, and intelligence, are negative and fairly high, *e.g.*, $-.29$ and $-.49$. Effort and academic grade also give a negative correlation. Such a study shows why intelligence tests and grades fail to show high correlations. Students of the best native ability spend very little time in study. Raising the standard of the work will not remedy the situation because in order to make the brightest study, standards would have to be raised so high as to mean failure for half or three-quarters of the class. The only way to make all study up to capacity is to "motivate" the work of the class. Through such motivation correlations between grades and abilities have steadily risen in one department from 23 to 53, and are steadily rising.

R. PINTNER (Columbia)

1011. McCORMACK, T. J., A Critique of Mental Measurements. *Sch. and Soc.*, 1922, 15, 686-692.

Compares measurement in psychology with measurement in physics. Makes a sharp distinction between quantity and quality. Mental tests measure achievements and behavior and not mind. Then for achievement a number series, *i.e.*, mental ages, is substituted. Intelligence quotients are three degrees removed from the things they are supposed to measure. "They are knowledge of knowledge of knowledge, steadily increasing in emptiness." Then, again, the present measurements do not measure "the composite whole known as mind or intelligence." "The line of demarcation between native endowment and acquired power, between heredity and environment, cannot be definitely traced or permanently fixed."

R. PINTNER (Columbia)

1012. COBB, M. V., and TAPE, H. A., Note on a Method for Studying Causes of Increase in Alpha Scores. *Sch. and Soc.*, 1922, 15, 706-708.

Suggests a method whereby amount of increase in score due to practice may be estimated and allowed for in different grades in a school where the same mental test is being given annually to all grades.

R. PINTNER (Columbia)

1013. HOLLINGWORTH, LETA S., GARRISON, C. G., BURKE, A., Subsequent History of E—Five Years After the Initial Report. *J. of Applied Psychol.*, 1922, 6, 205-210.

In the *Journal of Applied Psychology* for 1917 a report was made of the mental status and educational achievement of a boy, E., at that time eight years old. His I. Q. on first examination was at least 187 (Stanford-Binet) and he was in the sixth grade. In the school the median I. Q. of the pupils is about 116, median age for pupils in the sixth grade, eleven to twelve years. In 1920 E. took the Thorndike Mental Tests for entrance to Columbia College and the director of admissions states, "In the freshman test he was No. 2, out of 483 entering Columbia." He was then twelve years old, the median age of his competitors about eighteen years. He was admitted to Columbia College with the freshmen of 1920, with 14 points of advance credit toward the A.B. degree. In June, 1921, not quite thirteen years old, he had 46 points of academic credit toward the A.B. degree. He made 32 points in freshman year, maintaining consistently a grade of B except in two subjects. In physical education his rating was C. He attended summer school in 1921, making 5 points of A work. In September, 1921, his school status was the fourth semester college, his intellectual status Alpha Form 5, 194 points, his height 64.2 inches, his weight 166 pounds. The norm for that age is school status eighth grade elementary school, intellectual status 47 points, height 58.2 inches, weight 89.5 pounds. At eight years of age his I. Q. stood +11 P. E.; the probabilities are usually regarded as slight that cases beyond 5 P. E. will occur. E. wishes to be a minister and go abroad as a missionary.

E. MULHALL ACHILLES (Columbia)

1014. HEWES, A., and OTHERS, Standardization of the Whipple-Healy Tapping Test. *J. of Applied Psychol.*, 1922, 6, 89-112.

The study is a standardization of a test for measuring speed and accuracy of eye-hand coördinations. The central tendency was estimated for each age group in a total of 2253 children ranging in age from seven to seventeen years in order that the performances in any given case might be rated and used as one of a group of results on which to base vocational advice. The curves show that the girls tested have developed motor skill earlier than the boys, and that they maintain a small, but nearly constant degree of superiority until seventeen years is reached, when the boys overtake the girls. Then numbers tested are not sufficiently large to warrant generalizations

as to the relative ability of girls and boys in other performances of this kind. They indicate that the field would be a fruitful one for further research.

E. MULHALL ACHILLES (Columbia)

1015. WHITCHURCH, A. K., Psychological Norms Among University Freshmen. *J. of Applied Psychol.*, 1922, 5, 318-339.

The investigation was made on 100 freshmen at Northwestern University in 1916-17. The psychological tests used were easy directions, hard directions, African proverb, substitution. The professors of freshmen mathematics estimated the ability of the students. From the high school it was learned whether each student was in the first, second, third or fourth quarter for graduation. The following correlations were obtained: General intelligence and mathematics grade, .24; general intelligence and professor's estimate, .22; general intelligence and high school quarter, .36; mathematics grade and high school quarter, .55; mathematics grade and professor's estimate, .92; professor's estimates and high school quarter, .59.

E. MULHALL ACHILLES (Columbia)

1016. KUBO, Y., Revised and Extended Binet-Simon Tests, Applied to the Japanese Children. *Ped. Sem.*, 1922, 29, 187-194.

A revision of the Binet-Simon series of tests including some adaptations from performance, Otis, and army tests, and ranging from two years to fourteen years inclusive, is given in detail, arranged from results of tests given 1200 Tokyo children.

J. F. DASHIELL (North Carolina)

1017. SAER, D. J., An Inquiry Into the Effect of Bilingualism Upon the Intelligence of Young Children. *J. of Exper. Ped.*, 1922, 6, 232-240, 266-274.

Thirteen hundred children from seven to twelve years of age were examined in urban and rural districts of West Wales. The Stanford Revision was used, together with supplementary tests from Binet's 1911 scale and Burt's English revision. A Welsh translation was also given, and tests of rhythm and dextrality. In rural districts 80 per cent of the children speaking only one language were found to be as intelligent as 50 per cent of the bilingual children. According to the investigator, no factor except that of language was discovered which could be suspected of accounting for this difference. Urban children do not show these differences, but it is remarked that urban children whose mother tongue is Welsh tend to restrict themselves

more to English than rural bilingual children. Even in the urban districts, the monoglot subjects show a consistent superiority in tests involving vocal rhythms, and in knowledge of right and left.

H. E. JONES (Columbia)

1018. GREEN, J. A., Intelligence. *J. of Exper. Ped.*, 1922, 6, 264-266.

If tests of mental ability fail to show a growth in intelligence after the year fourteen, this may be because they are essentially adapted to a puerile world. Intelligence increases in complexity as environments become more complex. Children, being dependent and protected, live in a fairly common medium; tests of intelligence measure the growth in efficiency of integration systems which develop within this common milieu. With adolescence, environments become more diverse and complex. The difficulty of intelligence tests after fourteen comes from the diversity of environments, to the demands of which intelligence is applied.

H. E. JONES (Columbia)

1019. BALLARD, P. B., The Limit of the Growth of Intelligence. *Brit. J. of Psychol., Gen. Sec.*, 1921, 12, 125-141.

Tests consisting of 34 sentences containing absurdities to be detected through which were mixed four sentences of spurious absurdities were given to some 2000 subjects, the children varying in age from eleven to twenty-two years. The results show that after twelve years the curve for the growth of intelligence shows a very marked slowing-down and that after sixteen further growth is inappreciable. It follows that a year of mental age is not a fixed unit; it gradually diminished towards the higher end of the scale.

S. W. FERNBERGER (Pennsylvania)

1020. Fox, C., A New Method of Marking Group Tests. *Brit. J. of Psychol., Gen. Sec.*, 1921, 12, 181-187.

Mental tests which attempt to ascertain an individual's mental age are too crude to be used for discriminating grades of excellence within a mental age. The test described was given to the children between eleven and twelve years in the Canbridge Borough to ascertain which of the children should be given higher education. Ten situations were given to the children, each followed by a question which could be answered by reasoning from the situation.

S. W. FERNBERGER (Pennsylvania)

1021. THOM, D. A., Habit Clinics for Children of Preschool Age. *Amer. J. of Psychiatry*, 1922, **2**, 31-42.

"The function of the habit clinic is to deal with those children who are developing during the preschool age undesirable methods of meeting the daily problems with which they are confronted, and to further the formation of habits that will tend toward the proper development of the child and its best interests at a time when methods of prevention rather than of cure can be utilized." The writer discusses factors at work in habit formation and presents several case histories which show the development of undesirable habit reactions and the importance of correcting such behavior before it becomes too fixed.

J. WALKER (Boston Psychopathic Hospital)

1022. HYDE, G. E., Recognition of Prepsychotic Children by Group Mental Tests. *Amer. J. of Psychiatry*, 1922, **2**, 43-48.

A survey of 15,000 school children of Utah below the fifth grade by the army Beta tests showed 5 per cent "subnormal," 20 per cent of this lower 5 per cent or 1 per cent of the total surveyed population the article affirms were in this group because of "nervousness and excitability." The presence of "nervousness" was detected by an "appropriate questionnaire" filled out by the teachers. The article does not state what criteria were used by the teachers in estimating "nervousness." The writer feels that the nervous child has a short span of attention and a long reaction period is required to restore metabolic equilibrium. It may be that synaptic connection does not occur, causing slow adaptation. Suitable group tests requiring graduated longer spans of attention can enable us to recognize school children who are nervous and unstable, thus paving the way for preventive work.

J. WALKER (Boston Psychopathic Hospital)

1023. BRADFORD, E. J. G., Factors in Mental Tests. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 279-281.

An attempt to demonstrate the possibility of a quantitative relation being established between groups of tests. Opposites, backward alphabet, forward alphabet, schema, ring and ring motor tests were given to 224 subjects. Degrees of correlation are given.

S. W. FERNBERGER (Pennsylvania)

1024. FILDES, L. G., and MYERS, C. S., Left-Handedness and the Reversal of Letters. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 273-278.

Report of the study of a markedly left-handed boy of six years of age who made peculiar use of and apparent preference for mirrored letters and numbers. Letters were read with equal ease either reversed or in normal position. He had the greatest difficulty in deciding which way the letters should go. Visual method of learning gave the greatest number of subsequent correct choices. Reversals occur when the learning was blindfolded and of a purely manual sort.

S. W. FERNBERGER (Pennsylvania)

1025. THOMSON, G. H., The Northumberland Mental Tests. *Brit. J. of Psychol., Gen. Sec.*, 1921, **12**, 201-222.

Description of a mental test designed to determine gifted children in the elementary schools worthy of free secondary education. The test booklet is reproduced and contains a number of tests so arranged that they may be given as group tests and easily scored after the examination. Several of the tests are new and others are older tests with a new arrangement. The maximum time is one hour. The results of some 2532 cases are given. Norms of performance are given and the correlation of scores with mental age in months is given as compared with the Binet I. Q. The scores of different types of city, country and suburban schools are compared.

S. W. FERNBERGER (Pennsylvania)

1026. THOMSON, G. H., Age Standards for the Separate Northumberland Tests. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 72-75.

Standardization by score for age of each of the six separate tests used in the Northumberland tests.

S. W. FERNBERGER (Pennsylvania)

1027. PHILLIPS, W., John Locke on the General Influence of Studies. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 1-25.

From a critical examination of the writings of Locke, the author believes that he never considered or advanced a theory of formal training in education. There is every indication that he believed that no mental process could be improved by training. He advocated a broad rather than a narrow educational training.

S. W. FERNBERGER (Pennsylvania)

1028. SPEARMAN, C., Recent Contributions to the Theory of "Two Factors." *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 26-30.

Criticism of the formula of G. H. Thomson which argued against the existence of a "general factor" in mental test results.

S. W. FERNBERGER (Pennsylvania)

1029. JONES, E., Some Problems of Adolescence. *Brit. J. of Psychol., Gen. Sec.*, 1922, **13**, 31-47.

Speculative discussion of differences between child and adult in which the author attempts to determine of what "growing up" consists. Intellectual development, differences in integration, emotion and imagination and sexual maturity are discussed. Adolescence, as the recapitulation of the phases of infantile sexual history is discussed from the psychoanalytic viewpoint and the influence of the differences just given and of the biological significance of puberty from this standpoint are treated.

S. W. FERNBERGER (Pennsylvania)

12. MENTAL EVOLUTION

1030. ATKINS, E. W., and DASHIELL, J. F., Reactions of the White Rat to Multiple Stimuli in Temporal Orders. *J. of Compar. Psychol.*, 1921, **1**, 433-451.

The multiple choice procedure, involving a temporal seriation of exits to food, was employed on six male and six female white rats. The apparatus consisted of a large dark runway issuing into four passageways, which were lighted in any desired order, one of which connected with a food box, and this was attached to any desired passageway. Closely adjacent to the dark runway, the experimenters had an observation box and a system of contacts for serially presenting electric lights in the four approaches to the food box. The problem was the ascertaining of whether or not rats can learn successfully to run the maze by temporal cues alone. The trials came twice daily—at the feeding periods—and consisted of about 100 preliminary and 400 regular trials per rat. It was found that none of the rats learned the problem and that almost no progress occurred after the 160th trial. A few rats formed position, or spatial, habits, and this fact hindered progress in temporal learning. The authors raise several interesting questions, and suggest other experiments. The

paper contains a cut of the apparatus, four tables in exposition of the technique and of the results, and fourteen graphs of learning curves.

H. R. CROSLAND (Oregon)

1031. STONE, C. P., Notes on Light Discrimination in the Dog. *J. of Compar. Psychol.*, 1921, 1, 413-431.

Using the Yerkes-Watson brightness apparatus and Haggerty's control box, Stone sought to ascertain the brightness discrimination threshold in the dog. The dogs used were a cocker spaniel, two fox terriers, and a mongrel. Comparative data were obtained also from six human adults; and the data previously presented by Yerkes on the dancing mouse and by Tugman on the English sparrow were used comparatively. Well-learned habits of entering the discrimination chamber and returning by the alley opposite the standard light were established by means of punishment by electrically charged grill wires under the dogs' feet as preparatory measures to the experiments upon discrimination of small light differences. When the main experiments began the position of the standard, 1 c.p., light in relation to its comparison light was altered to prevent position habits, and this seriation of light positions was so arranged that the exposures in the two positions were equal in number. The results were briefly as follows: (1) The least differences from the 1 c.p. light at which 30 consecutive errorless discriminations were made were: female dog, 0.14 c.p.; male dog, 0.2 c.p.; two humans, 0.11 c.p.; a third human, 0.09 c.p. (2) The lowest differences which were clearly discriminated were: Female dog, 0.12 c.p., percentage of error 26.5, number of trials 75; male dog, 0.10 c.p., percentage of error 27.7, number of trials 90; two humans, 0.06 c.p., percentage of error 20.0, number of trials 45; the third human, 0.04 c.p., percentage of error 17.7, number of trials 45. (3) Humans excelled the lower animals and the dogs excelled the English sparrow and equaled the best of dancing mice.

H. R. CROSLAND (Oregon)

1032. MACDOWELL, E. C., Experiments with Alcohol and White Rats. *Amer. Nat.*, 1922, 56, 289-311.

Beginning at the time of weaning alcohol was administered to white rats thirty minutes a day for seven consecutive days by the inhalation method. Then the treatment was varied according to the behavior of the animal, the alcohol fumes being given them until they

showed signs of becoming affected. This continued for fourteen days. Subsequently the rats were kept in the fumes until they became anesthetized. This required from three to four hours in some of the older subjects. These treated rats were then run through Watson's maze; tested by the multiple choice method; and records were kept of their fertility and weight. The same experiments and records were kept for a group of untreated rats. Results were as follows: Treated rats took more time in running the maze; they produced smaller litters, fewer litters and grew more slowly than did the untreated rats. Treated offspring from treated rats tended to take more time in the maze; bore smaller and fewer litters and grew slightly slower than the normals. Untreated offspring from treated rats differed from their controls as follows: they produced smaller litters but more litters; they took a very little longer in running the maze and were heavier. Untreated offspring in the second generation from treated rats also produced smaller but more litters; took a little more time in running the maze; and were somewhat heavier. Thus it turned out that the influence of alcohol was a complicated one. It seemed to modify the germinal material directly and played a selective rôle. The experiments had to be discontinued during the war but as far as results were obtained they clearly indicate need of more careful interpretation as to the effects of alcohol on the organism.

R. H. WHEELER (Oregon)

1033. LOEB, L., Inheritance of Cancer in Mice. *Amer. Nat.*, 1921, 55, No. 642, 510-528.

An extensive study of 12,000 female mice yielded the following results: Cancer-rate in individual strains and families is relatively constant and consistent correlations appear between the rates of sub-strains and main strains of mice. If strains having a similar tumor-rate are crossed the offspring inherit a rate common to both parents, or the rate strikes a balance, or varying degrees of intermediary rates are observed. Multiple factors underlie the hereditary predisposition; the trait is not a recessive monohybrid. The age at which a tumor appears is characteristic of individual strains and is an inherited factor. Cancer is not a sex-linked character but this does not rule out the possibility that sex-linked characters may not enter as one of the multiple factors in the inheritance of the disease.

R. H. WHEELER (Oregon)

1034. CHIDESTER, F., Studies on Fish Migration. II. The Influence of Salinity on the Dispersal of Fishes. *Amer. Nat.*, 1922, **56**, 373-380.

R. H. WHEELER (Oregon)

1035. McINDOO, N. E., The Auditory Sense of the Honey-Bee. *J. of Comp. Neurol.*, 1922, **34**, 173-200.

The special sound-producing apparatus of the honey-bee consists of membranes lying between the axillaries at the bases of the front wings. There have been five different organs described as acoustical in the honey-bee—pore plates, Forel flasks, pit pegs, and Johnston's organ, all located in the antennæ—but none of these are believed by the author to be fitted to act as sound receptors. Hearing, in insects, is presumably nothing more than response to mechanical jarrings, as was suggested in 1908 by Forel.

R. H. WHEELER (Oregon)

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